Education, Poverty and Schooling: A Study of Delhi Slum Dwellers

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Statement

I hereby declare that this thesis has not been and will not be, submitted in whole or in part to another University for the award of any other degree.

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Summary

Poverty reduction and Education for All (EFA) are important policy issues in many developing countries as they are both Millennium Development Goals (MDGs). As the existing literature suggests, education positively influences poverty reduction, while poverty, or low income, adversely affects the quality and quantity of education. Accordingly, if education fails to facilitate poverty reduction, the following generation's schooling is likely to be adversely affected, thus perpetuating a vicious education–poverty circle.

It was against such a background, and employing a mixed methods approach to data collection and analysis, that this study investigated the relationship between education and multidimensional poverty at an individual as well as household level, and the influence of deprivation on children's education, in the context of the slum in Delhi, India.

The thesis reveals that education – particularly primary and middle schooling – enhances the earnings of male slum dwellers in particular, the overwhelming majority of whom suffer from informality and instability of employment. It also emerges that education plays an important role in the ability to participate with confidence in the public sphere. At the household level, education proves to have a positive association with monetary poverty, but a higher level of education per se does not necessarily facilitate escape from non-monetary poverty.

In such a nexus of poverty and education, the thesis found that household wealth in association with social group and migration status tends to be positively correlated with child schooling, education expenditure, and basic learning. There may be a chance of escaping poverty through education, but such a likelihood is limited for those households that are underprivileged in terms of caste and religion owing to slow progress in basic learning, as well as migrant households due to lack of access to schooling. The thesis concludes by proposing some education policies drawn from the major findings of the study that may be implemented in the Indian slum context.

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This thesis is dedicated to my family, who have lovingly watched over my journey all these years and must be pleased to know that it is finally over.

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List of Acronyms

GDP	Gross Domestic Product
HDI	Human Development Index
ICDS	Integrated Child Development Scheme
ILO	International Labour Organization
INR	Indian Rupee
MCD	Municipal Corporation of Delhi
MDG	Millennium Development Goals
MPCE	Monthly Per Capita Consumer Expenditure
NCO	National Classification of Occupations
NDMC	New Delhi Municipal Council
NFHS	National Family Health Survey
NGO	Non-Governmental Organization
NSDP	Net State Domestic Product
NSS	National Sample Survey
OBCs	Other Backward Classes
OLS	Ordinary Least Squares
SC	Scheduled Caste
SSA	Sarva Shiksha Abhiyan
ST	Scheduled Tribe
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children’s Fund

Chapter 1 Introduction

1.1. Purpose of the Thesis

The purpose of this thesis is to investigate the relationship between education and multidimensional poverty, and the influence of deprivation on child schooling aimed at breaking the vicious circle of poverty; thus, also enabling an exploration of the intergenerational education–poverty circle. The context is slum households in Delhi, the capital of India. Indeed, since rapid urbanisation is occurring in many developing countries and urban poverty is still relatively under-researched compared to rural poverty (Haddad et al., 1999), the thesis constitutes a timely focus on the slum. Accordingly, it seeks to answer the following research questions.

A. How and to what extent is education associated with poverty?

- A1. What role does education play in enhancing post-schooling lives among adult slum dwellers?
- A1-1. How and to what extent are adult slum dwellers educated, and what factors are associated with their education level?
- A1-2. To what degree does education enhance earnings through employment opportunities?
- A1-3. How do illiterate people value education as a means of poverty alleviation?

- A2. How and to what extent is education associated with multidimensional poverty at household level?
- A2-1. How poor are slum households, and how is poverty distributed across households?
- A2-2. How and to what extent does education participation predict poverty level?

B. How and to what extent is poverty associated with child schooling?

- B1. What factors combine with poverty to prevent slum children from gaining access to schooling?
- B2. What are the costs of schooling, and how do they influence participation?
- B3. Is the quality of schooling that slum children have access to sufficiently adequate to enable them to escape from poverty in the future?

It is noted that there is a reciprocal relationship between education and poverty that is

mutually reinforcing: both education as a means of poverty reduction, and poverty as a reason for lack of access to education are opposite sides of the same coin. It is therefore difficult to distinguish the effects of poverty on education from those of education on poverty. However, the present study does not seek to determine the causality of education or deprivation, but to separately investigate the correlation between education and poverty, and that between poverty and children's education.

1.2. Context of Research

Poverty alleviation is hardly a new theme in strategies for development or the existing literature on the subject. Nevertheless, since the 1990s, it has re-emerged to dominate the international development agendas of international organisations and northern governments (Lipton and Maxwell, 1992). Thus, one of the Millennium Development Goals (MDGs) endorsed by world leaders at the United Nations Millennium Summit in 2000 was to reduce by half by 2015 the proportion of people living on less than a dollar a day and those suffering from hunger in general.

However, in India, 41.6% of the population still subsists on less than 1.25 dollars a day (World Bank, 2011). Moreover, it has been pointed out that poverty reduction in India has actually slowed down in recent years (Deaton, 2003; Sundram and Tendulkar, 2003a; Sen and Himanshu, 2004a; 2004b; Dhamija and Bhide, 2010). Indeed, as accelerated economic growth has benefited people disproportionately, poverty alleviation remains a critical issue on the subcontinent (Dev, 2008; Hirashima, et al., 2011).

Primary education for all (EFA) is also one of the MDGs. It is widely acknowledged that there are disparities in education in India with regard to access, quality of teaching, and educational attainment, across spatial, social, economic, gender and ethnic lines, as well as in other respects. For example, according to the World Inequality Database on Education (WIDE), as of 2005, in respect of children aged 7 to 16, 27% of those in India's lowest wealth quintile had never attended school, while the corresponding figure

was only 3% with regard to the highest wealth quintile.[1] Lack of or inadequate education is a serious issue not only because schooling – particularly primary education – is constitutionally and legally guaranteed as a fundamental right of children, but also because it is perceived to have a pivotal role in poverty alleviation.

Education is regarded as a means of escaping poverty (Becker, 1993), primary education being critical in this regard (Jimenez, 1995; Lipton and Ravallion, 1995). More specifically, according to human capital theory, education can both enhance an individual's productivity – thus improving their earnings – and contribute to the economic growth of the country as a whole (Schultz, 1963; Becker, 1993). Furthermore, the recommendation that higher priority be given to female education in developing countries is based on empirical studies showing that the rate of return to girls' schooling is often higher than that in terms of boys (Psacharopoulos, 1994; Psacharopoulos and Patrinos, 2002).[2] Moreover, it is held that educating girls leads to a lower birth rate, and improved education, nutrition and health in children – all which can contribute to breaking the vicious circle of poverty (Colclough et al., 1993; Lewin, 1993; Lipton and Ravallion, 1995; World Bank, 1995; Watkins, 2000).

Nevertheless, it is acknowledged that the concept of deprivation extends far beyond the purely financial element of the phenomenon to encompass the multidimensional aspects of non-monetary poverty (Sen, 1981; 1985; Haq, 1995; World Bank, 2001; Stewart et al., 2007). However, the existing literature on the effects of education on poverty is still overwhelmingly dominated by its impact in monetary terms (Hulme and McKay, 2005). There is thus a gap in the research on the role of education in reducing non-monetary poverty.

If an individual is not educated, they will tend to inherit the poverty of their parents, but educating the children of the poor increases their chances of escaping poverty for themselves and future generations; and it is well known that poor parents are interested

[1] http://www.education-inequalities.org/

[2] The high priority given to female education is also based on a basic human rights approach: for example, universal primary education by 2015, with equality between boys and girls, is one of the MDGs.

in educating their children (Narayan, 2000b). However, access to a reasonable standard of education for children of poor households is relatively more limited than for those from non-poor households. Moreover, much of the research shows that deprivation in terms of education is caused not merely by poverty per se but also by related international, national, community, school, household and individual influences (Rose and Dyer, 2008).

It is generally acknowledged that poverty in India – which is associated with other disadvantages around gender, caste, religion and location – limits education opportunities. Evidence suggests a strong correlation between the education levels of adults and their children in developing countries. For example, Strauss and Thomas (1995) imply that escaping poverty through education is not easy for poorer households where parental education levels tend to be lower than those of non-poor households. Furthermore, in the present developing world situation in which the overall education level is improving, the returns to schooling may be not as high as they were for previous generations who generally experienced lower levels of education. Thus, it may be relatively more difficult for poorer households to escape from poverty because they have relatively greater difficulty in securing higher paying jobs and sending their children to school (Colclough, 2012). Against such a background, it is all the more important to explore whether the poor who are faced with further disadvantages – slum residence in the present case – are able to escape from poverty through education, and, if so, what the necessary personal and circumstantial prerequisites are.

1.3. Research Methodology and Methods

In order to explore the above questions, data were collected mainly through a survey of 417 households, which was conducted from November 2007 to March 2008 in 50 notified Delhi slums using three stratified random sampling techniques. This was followed by a focus group discussion in 2008 and interviews in subsequent years with non-governmental organisations (NGOs) and researchers working in slums. The data collection and analytical methodology employed in the study constituted a mixed methods approach that utilised both quantitative and qualitative techniques. Quantitative analysis is used in generalising the relationship between education and poverty, and vice

versa; and qualitative analysis is employed for the triangulation of quantitative findings as well as describing certain aspects of poverty and the impact of education on life experiences after school.

1.4. Contributions of the Thesis

A significant contribution of this thesis is to fill some significant gaps in our knowledge of the linkage between education and poverty reduction in general, and between poverty and education among slum dwellers in particular. It also provides some insight into such potential intergenerational linkages.

In particular, this study is expected to make three main contributions. Firstly, the thesis makes a methodological contribution. Historically, debate on the poverty–education nexus has been conducted separately within the fields of economics and education respectively. However, there has been no active or substantial dialogue between economists and educationists, and there remain differences of focus, concern, approach and understanding of the two phenomena between the respective disciplines (Rose and Dyer, 2008). For example, education is often regarded as a means of poverty alleviation in the economics of education research (Becker, 1993; Jimenez, 1995; Lipton and Ravallion, 1995), while “education research tends to lack a focus on how schooling actually does effect interruptions to the poverty cycle” (Rose and Dyer, 2008, p.9).

Furthermore, recent developments in the understanding of poverty notwithstanding, its conceptualisation in the current economics of education research is still dominated by income/expenditure-based measurements; while, to date, poverty has not been considered a very important issue in education research since it is regarded as just one of many factors – e.g. cultural, political, social – that might lead to children’s exclusion from schooling (Rose and Dyer, 2008). Moreover, the economics of education research has disclosed very little about the factors that lead to education outcomes before individuals join the labour market (Colclough et al., 2003). On the other hand, education research often ignores post-schooling livelihood opportunities (Rose and Dyer, 2008). Therefore, the present study integrates the economics of education and education research by identifying and generalising linkages between education and deprivation as

well as those between deprivation and children's schooling, using a quantitative-oriented approach; and describes the process of becoming poor and reasons for poverty, and being educated or uneducated, employing a qualitative approach.

Secondly, the thesis seeks to fill a gap in the existing literature on the relationship between education and poverty in two areas. The first addresses the applicability of human capital theory, which holds that education invariably leads to a better paid job (e.g. Psacharopoulos, 1994; Psacharopoulos and Patrinos, 2002) than would otherwise be available. Human capital theory mainly addresses waged labourers in developing countries, although such employees in the formal sector generally account for a small proportion of the total labour force in these countries (ILO, 2002). Some studies argue that human capital is largely irrelevant – or less relevant – to individual workers in the informal sector (e.g. Teilhet-Waldorf and Waldorf, 1983; Taubman and Wachter, 1986; Tueros, 1995; Funkhouser, 1996; Saha and Sarker, 1999); while others have found a positive correlation between education and income in the informal sector in developing countries (Carnoy, 1980; Hallak and Caillods, 1980; Watkins, 2000). Thus, the applicability of human capital theory to informal sector workers remains inconclusive (Lewin, 1993).

In the second area, this thesis disaggregates poverty in its investigation of the relationship between education and deprivation, which is an aspect that remains under-researched. Specifically, the thesis examines the correlation between education and multidimensional deprivation in terms of monetary poverty, basic needs/capabilities, and subjective poverty. In particular, it addresses research on subjective poverty in new and emerging areas of the social sciences, especially in developing countries. It is also probable that the analysis of subjective wellbeing will deepen our insight into understanding poverty and its linkage with education.

Lastly, the thesis focuses on poverty and education in the lower echelons of the urban economy, and brings new information and insights into the realities of the urban disadvantaged. As Govinda (2002) argues, education research has not paid sufficient attention in to the high level of disparity in the urban sector:

> Surprisingly, successive policy documents on education have made no mention of the problems of education among the urban disadvantaged. Consequently, there is no coherent perspective on tackling the problems of education of such children, and nor is there adequate information on the educational provisions reaching disadvantaged children in urban areas (Govinda, 2002 p.8).

In short, the present study seeks to shed further light on the main components of the education–poverty nexus, and the access to schooling of Delhi's poor.

1.5. Thesis Outline

The thesis consists of eight chapters whose structure is as follows. Chapter 2 provides a review of the literature on the concept of multidimensional poverty; followed by an examination of the role of education in poverty at household and individual levels, and the access of the poor to education. The resultant conceptual framework is also described. Chapter 3 describes the research context of the Delhi slum. Chapter 4 discusses the data collection and analysis methodology and methods employed in this study, and provides an overview of the surveyed slums. Chapter 5 investigates adult slum dwellers' educational attainment and its relationship with their earnings. Since slum dwellers tend to be considerably less well educated than other sections of the population, this chapter also discusses the value of schooling in poverty reduction from the point of view of illiterate people based on individuals' life experiences. Chapter 6 explores the relationship between education and monetary poverty, basic needs/capabilities, and subjective wellbeing at household level. Chapter 7 addresses the access of the poor to education – including the factors that prevent children from attending school – the cost of schooling, and principal learning outcomes in order to deepen insight into the possibility of breaking the vicious circle of poverty through the education of child slum dwellers. Finally, a summary of the major findings of the study is presented in Chapter 8, which also discusses policy implications and proposes areas for further research.

Chapter 2 Literature Review and Conceptual Framework

2.1. Introduction

Much of the relevant literature suggests that education not only has intrinsic worth but also instrumental value in that it enhances the quality of life, helps people earn more, improves their health, and raises the individual's awareness of their rights for themselves and subsequent generations (e.g. Gradstein et al., 2004; Hannum and Buchmann, 2005; Lochner, 2011). Indeed, if education fails to facilitate poverty reduction, the following generation's schooling is likely to be adversely affected; thus, a vicious education–poverty circle is perpetuated whereby inadequately educated households become increasingly unlikely to move out of privation and consequently have less income to invest in the education of their children.

The purpose of this chapter is to review the existing literature on the surmounting of poverty through education and the access of the poor to schooling. The structure is as follows. Section 2.2 discusses the concepts and definitions of multidimensional poverty. Section 2.3 focuses on education–poverty linkages; including those between education and income poverty at both household and individual levels, and those between education and subjective wellbeing. Section 2.4 outlines various issues regarding access to education by the poor, including slum dwellers. Section 2.5 introduces the conceptual framework. Finally, Section 2.6 summarises the main findings of the chapter and identifies the key ideas to be addressed in subsequent chapters.

2.2. Conceptualisation of Poverty

Studies on poverty have increasingly acknowledged the multidimensional nature of deprivation. Laderchi et al. (2003) compare and contrast the various definitions of poverty, concluding that there is a high degree of disparity between them. This raises the serious concern that poverty alleviation policies and programmes lead to the targeting of specific types of poverty and poor people, and exclude others. For this reason, it is important to examine the different conceptions of poverty.

2.2.1. Income/Expenditure Poverty

Traditionally, poverty has been understood merely as an inadequacy of income or consumption in static terms (World Bank, 2001).[3] The financial approach is frequently rationalised such that income or consumption is presumed to represent the maximisation of utility or approximate welfare.[4] In this approach, the cut-off poverty line is constructed based on income or expenditure and those who fall below it are regarded as being poor (ibid.). The poverty line thus serves as the threshold of deprivation, and those determined by it as 'the poor' consequently become the target group in poverty alleviation policies (ibid.).

In India, the poverty line has been constructed on the basis of what Ravallion (1998) terms the 'food–energy intake' method,[5] that is, household monthly per capita consumer expenditure (MPCE). As calculated by National Sample Surveys (NSS) in 1973/74, this amounted to Indian Rupees (INR) 49.09 and 56.64 in rural and urban areas respectively, which were equivalent to a basket of food that met a calorific intake per capita per day of 2,100 kcal and 2,400 kcal in rural and urban areas respectively, together with the cost of a range of non-food items selected at its discretion (Government of India, 1993).[6] These figures may be adjusted for price changes in the rural and urban areas of each state using dedicated consumer price indices (ibid.).

However, several criticisms were levelled at the methodology of this estimation of poverty, which utilised outdated consumption patterns and methodology of price adjustment (e.g. Deaton, 2006). In 2011, the government accepted the recommendations of a committee of experts that had revised the method for estimating the expenditure of

[3] It is increasingly acknowledged that poverty is a dynamic concept, although this thesis does not address its duration, i.e. chronic versus transient poverty.

[4] This is based on expected utility theory, the principle of which assumes that people strive to maximize expected utilities when there is market uncertainty. Prospect theory, on the other hand, explains how decision making at times of risk results in pervasive effects that are not consistent with the basic tenet of utility theory.

[5] Ravallion (1998) illustrates two widely used poverty line construction techniques: the food–energy intake method, and the cost-of-basic-needs method. In the former, the poverty line is constructed by calculating the monetary value of pre-determined food energy requirements. In the latter, the poverty line is based on a range of basic consumption needs that must be met in order to attain the widely accepted minimum standard of living.

[6] The average exchange rates both in 1973 and 1974 were INR 18.8 to sterling (GBP) 1.00 (Reserve Bank of India website http://www.rbi.org.in/).

the poor particularly in rural areas by renewing the poverty line basket and price indices. Adopting the new estimates, the Government of India (2012) identified the proportion of the population below the poverty line (head count poverty ratio) in 2004/05 as 42.0% in rural areas, which was significantly higher than that indicated by the previous method (28.3%). In contrast, urban poverty did not change as dramatically since the urban national head count ratio in 2004/05 was used as a reference poverty line basket (ibid.).[7]

Nevertheless, it is clear that the slight modification of the basket and price adjustment has led to a different definition of the poor. This implies that the financially poor – similar to other concepts of poverty discussed below – are not free from the numerous arbitrary and subjective judgments in conceptualisation and measurement, including political considerations; although such judgments are often indiscernible and far from transparent.

2.2.2. The Concept of Multidimensional Deprivation: Non-monetary Poverty

Research on deprivation has traditionally been dominated by monetary poverty, probably because it is relatively easy to measure, and methodologically developed and advanced. However, it is increasingly recognised that monetary poverty reflects just one aspect of the multidimensional nature of deprivation, and the current understanding of poverty extends far beyond the conventional approach based on income and expenditure (e.g. Sen, 1981; 1985; Haq, 1995; World Bank, 2001; Stewart et al., 2007).

When poverty is addressed in multidimensional terms, it becomes apparent that lack of education is a critical element of deprivation. For example, education was one of the original three indicators in the Human Development Index (HDI) initiated by the United Nations Development Programme (UNDP) in 1990. Additionally, the United Nations Educational, Scientific and Cultural Organization (UNESCO) (2010) defines those who have less than four years of schooling as educationally poor, since this is deemed to be the minimum necessary to acquire basic literacy and numeracy skills; and those who have fewer than two years of education are considered to be extremely educationally

[7] The head count poverty ratio in urban India in 2004/05 was 25.7% according to the earlier method of estimation, while it was 25.5% according to the subsequent method.

poor. Indeed, lack of education is commonly cited as a form of deprivation in both the basic needs and capability approaches to development.

This section addresses some of the major concepts of non-monetary poverty such as basic needs, capability, and subjective wellbeing. However other important aspects such as lack of access to food (food poverty), and health and nutrition (health poverty) are not discussed in detail, since they are regarded as elements of basic needs in this thesis (see the following section as well as Chapter 6 Section 6.4).

2.2.2.1. Basic Needs

The 1970s may be regarded as one of the turning points in thinking on development. There were growing concerns that the 'trickle-down' approach was not working as well as expected following high economic growth in the 1960s (Oman and Wignaraja, 1991). Thus, attention was diverted from monetary-based poverty to employment, redistribution with growth, and basic needs (ibid.).

The concept of basic needs emerged in the late 1960s, and was later adopted in aid strategies for developing countries by global agencies such as the International Labour Organisation (ILO) and the World Bank in the mid-1970s. Basic needs are more narrowly defined in international development circles than in the wider range of theoretical argument in the social sciences (e.g. Maslow, 1943; Doyal and Gough, 1991; Gasper, 1996; Wiggins, 1998). For example, the ILO (1976) defines basic needs as:

> …the minimum standard of living which a society should set for the poorest groups of its people…[in terms of] food, shelter, clothing…[and] access to other essential services such as safe drinking-water, sanitation, transport, health and education (p. 7).

As Stewart (1989) notes, there is broad consensus on the definition of basic needs, which include food, water, health, education and shelter. However, some studies argue that they extend beyond material necessities to encompass subjective requirements, such as self-determination, self-reliance, political freedom, security, participation in decision making, and identity (e.g. Streeten, 1979).

In development practice, the basic needs approach has been slanted to provide particular target groups with specific essentials in terms of basic services and infrastructure, including education, health and nutrition, safety, water and sanitation, shelter, waste management, roads, and lighting. Yet, under such a policy, the poor are largely passive in the sense that these ‘basic needs’ are often not defined by the recipients themselves (Stewart et al., 2007).

Moreover, this approach seems to fail to take equality into account. Seers (1969) emphasises that in addition to such tangibles as employment and income, equality should be given an objective in its own right in development. Nevertheless, the concept of basic needs does not seem to accord with his argument that equality is critical in development.

2.2.2.2. Capability

Sen (1984) argues that the basic needs approach is a passive concept that lacks the conceptual foundation of a ‘good life’. Moreover, basic needs are identified through a minimum quantity of commodities, which may not be independently desirable for each individual due to social interdependence. This also leads to a softening of the opposition to inequality. Sen (1999) rather places greater emphasis on “understanding poverty and deprivation in terms of the lives people can actually lead and the freedoms they do actually have” (p. 92).

The capability approach Sen (1993) pioneered underlines the importance of what people are able to be and do. Basic capabilities are “the ability to satisfy certain crucially important functionings up to certain minimally adequate levels” (p. 41). This approach does not completely deny income poverty, since an income is conventionally required as a means of achieving capability. However, the concept of capability only partially overlaps with income poverty, if indeed it does at all. Income and a rudimentary education may be regarded as being necessary to achieve a minimally adequate level of wellbeing; however, they are not ends in themselves but requisite means or conditions for basic capability. This approach addresses a much wider range of causes of poverty and options for policy than is the case with monetary poverty (Stewart et al., 2007).

Nussbaum (1995) commends the advantages of the capability approach over other contemporary approaches to quality of life assessment. While measuring quality of life in terms of financial wellbeing is blind to the distribution of resources, other strategies "that...[measure] quality of life in terms of utility – polling people concerning the satisfaction of their preferences...[neglect] the obvious fact that desires and subjective preference are not always reliable indicators of what a person really needs" (ibid, p. 91).

Sen (1999) himself does not explain what he means by capability, contending that a value should be judged principally and explicitly through the process of public debate and fulfilled differently in different countries (ibid). However, from Sen's stance, it may be inferred that capabilities comprise a comparative framework for evaluating equality between individuals (Tikly and Barrett, 2011).

Alkire (2002) contends that:

> Operationalization of the capability approach with respect to absolute poverty entails of [sic] the identification of basic capabilities…which may be identified at a general level… Specification must occur at a lower level and in particular [a] temporal context (p. 195).

Several attempts have been made to define basic capability. However, when it comes to operationalising the concept, commentators who specify a set of capabilities tend to identify broadly similar measurable items to those of the basic needs approach (Saith, 2007). This also indicates that capability in operational terms tends to translate into a set of functions rather than actual capabilities. Although there are differences between the basic needs and capability approaches – including attention to equality – both advocate similar methodologies in the operationalisation of their respective concepts. Thus, for the purpose of quantitative analysis in this thesis, they are treated as representing the same definition of poverty.

2.2.2.3. Subjective Wellbeing

The conceptualisation of poverty described above represents the more or less arbitrary and subjective judgments of the outsider. In contrast, subjective wellbeing or happiness,

both of which are largely used interchangeably in the existing literature, is self-assessed by actors, including poor people, and is addressed mainly in psychological research. In psychology, subjective wellbeing contains "a broad category of phenomena that includes people's cognitive and affective evaluation of the events that occur in their lives, and the evaluation of life satisfaction and satisfaction with important domains" (Diener et al., 1999, p.277).

Subjective wellbeing is a relatively new and emerging area of research in the social sciences, particularly in developing countries. In the social sciences, the self-reporting of life satisfaction or happiness – a single component in this broad category of psychology – is frequently analysed, mainly due to the availability and measurability of data, as found in, for example, the World Value Survey,[8] Gallup World Poll,[9] and World Database of Happiness.[10] The present study adopts the definition – i.e. the self-reporting of life satisfaction – that is most widely used in the social sciences, thus enabling quantitative analysis of the concept.

However, there are some criticisms of subjective wellbeing as a conceptualisation of poverty. It is variously contended that such a paradigm is too broad as a measurement of poverty (Ravallion and Lokshin, 2002); it only represents a mental image of deprivation (Sen, 1984); and it is insufficient by itself to measure quality of life (Diener and Biswas-Diener, 2005). Sen (1984) further argues that:

> The most blatant forms of inequalities and exploitations survive in the world through making allies out of the deprived and the exploited… As people learn to adjust to the existing horrors by the sheer necessity of uneventful survival, the horrors look less terrible in the metric of utilities (pp.308–309).

In practical terms, the gauging of subjective wellbeing is susceptible to a number of factors in any given survey. For example, responses depend upon the phrasing and order of questions, and the answer scales presented to respondents. Moreover, participants may be in a particular mood at the time of the survey, behave in a perceived socially

[8] http://www.worldvaluessurvey.org/
[9] http://www.gallup.com/strategicconsulting/worldpoll.aspx
[10] http://www1.eur.nl/fsw/happiness/

acceptable fashion in the presence of surveyors, or give inconsistent answers (Bertrand and Mullainathan, 2001; Ravallion and Lokshin, 2002; Kahneman and Krueger, 2006). Nevertheless, it is likely that analysis of subjective wellbeing deepens our understanding of poverty, as the existing literature offers considerable insight into its conceptualisation.

2.3. Escaping Poverty through Education

The voluminous literature on the nexus of education and poverty can be divided into two hypotheses based on the direction of causality. One argument is that education positively influences poverty alleviation, and tends to be simpler and more straightforwardly presented than is the case in the poverty–education literature. The other argument is that poverty, or low income, adversely affects the quality and quantity of education at the macro, national level (UN Millennium Project, 2005a), the meso, regional and school levels (Watkins, 2000; Michaelowa, 2001), and the micro, household level (Watkins, 2000; Harper et al., 2003).

Dominated by economists, the first argument demonstrates how education can contribute to income poverty alleviation, and is partly reflected in the methods that economists adopt to show how education-related input variables can transform poverty-related output variables. In this approach, poverty is still largely understood in monetary terms in existing empirical examinations of the relationship between education and poverty (Hulme and McKay, 2005). Dominated by educationalists, the second debate suggests that the poverty–education nexus is complex, which is partly attributable to difficulty in distinguishing the effects of poverty on education from the effects of education on poverty.

Nevertheless, the relationship between poverty and education may be regarded as interrelated and mutually reinforcing, and much education research shows that deprivation in terms of schooling is caused not merely by poverty but also by related factors such as international, national, community, school, household and individual influences (Rose and Dyer, 2008).

Yet, both education as a means of poverty reduction and poverty as a reason for lack of access to education are opposite sides of the same coin. The present study thus seeks to examine in the context of the slum both the linkages between education and poverty, and those between poverty and the education of subsequent generations.

The benefits of education in different contexts have been discussed exhaustively (e.g. Gradstein et al., 2004; Hannum and Buchmann, 2005). Education might have a direct or indirect effect on a wide range of multidimensional poverty, including elements related to health (e.g. Caldwell, 1986; Colclough, 1993; Lewin, 1993; Lipton and Ravallion, 1995; Watkins, 2000); fertility (e.g. Caldwell, 1982; Drèze and Murthi, 2001; Basu, 2002); healthy attitudes and values (e.g. Oreopoulos and Salvanes, 2011); political decision making (e.g. Inkeles and Smith, 1974); citizenship (e.g. Lochner, 2011); and voter turnout (e.g. Dee, 2004; Milligan et al., 2004).

Since education is often regarded as a facilitative component of basic needs or capabilities, there is to my knowledge scant literature on such linkages. This section is thus mainly confined to a discussion on education and monetary poverty; followed by education and subjective wellbeing in the next section.

2.3.1 The Education–Income Poverty linkage at the Household Level

In the existing literature on the effects of education on household poverty, attainment is largely gauged by the household head's level of education or its members' average years of schooling. For example, Lokheed et al. (1980b) analyse the existing literature on 37 case studies examining the correlation between farmers' education and household income. Of these, 14 cases were found to use average years of schooling; 21 employed the household head or principal farmer's years of education; 1 adopted the average combined household years of schooling; 1 utilised the farmer's wife's level of education; and 2 were unspecified. Multiple education variables were used in some instances (ibid).

Lin (1991) argues that the cultivation of hybrid seeds in China is much more influenced by the household head's education level than the average schooling of other household

members; while Foster and Rosenzweig (1995) found that whether or not any household members had completed primary education played an important role in adopting new agricultural technology in India.

Some research has identified a knowledge spill-over effect in terms of the influence of the most highly educated household member on that of other members. For example, Yang (1997) examines the effect of the highest individual education level on non-agricultural work. Additionally, Jolliffe (2002) demonstrates that the level of the most highly educated household member, rather than that of the household head, is a better predictor of overall household education level in the estimation of family income.

Regardless of whose education is measured, it seems that schooling plays some role in poverty reduction. This is equally the case in India, but the tendency appears to be confined to the initially moderately poor (Bhide and Mehta, 2004). Thus, in rural areas, education provision for farming household heads has been found to increase income much less than that for non-farming household heads (Gaiha and Deolalikar, 1993).

These studies imply that education can alleviate income poverty in specific circumstances to a certain degree. However, a single year of education might not have any impact on poverty. For example, it has been found that there is little difference in the probability of sliding into poverty between household heads with more than five years of education and those who have five years or fewer (Gaiha and Imai, 2004).

Yet, it is unfortunately still not clear from these studies whose and what level or type of education is likely to play a significant role in helping households escape income poverty or avoid succumbing to it in the first place. Furthermore, they are prevented from clearly examining causalities by failing to separate education–poverty linkages from poverty–child education ones.

Nevertheless, a few studies on slum areas imply that education is the key to escaping poverty. For example, although some employment variables are regarded to be more important than human capital variables in determining earnings, Swaminathan (1997)

identifies years of schooling as being statistically significant in explaining earnings among low-income workers from homeless and slum families.

Moreover, Mitra and Tsujita (2008) empirically show that households in Delhi notified slums whose heads are (a) literate but below secondary education level, (b) educated to secondary level, and (c) tertiary level graduates and above, have a probability of escaping poverty relative to the illiterate of 0.35, 0.40 and 0.41 points respectively. It thus seems that the higher the level of education achieved by the household head, the lower the probability that the family will fall below the poverty line.

2.3.2. Linkages between Education and Income Poverty

2.3.2.1. Human Capital Theory at the Macro Level

Human capital theory is generally traced to William Petty in the 17th Century. Petty was followed in the 18th Century by Adam Smith's classic work, *An Inquiry into the Nature and Causes of the Wealth of Nations*, which denotes a worker's skill as the fundamental source of economic progress and welfare. However, it seems that this theory did not make an impact on mainstream economics of education until the 1960s and the work of the two Nobel Prize winners, Theodore Schultz and Gary Becker. The former's view of education as human capital considered the relationship between education and economic growth, as well as education and individual earnings (Schultz, 1963). The latter developed the theoretical framework by including rates of return to investment in education (Becker, 1993). Since the 1980s, endogenous economic growth theory has shed light on human capital in the process of technological change. Rapid economic growth in the East Asian economies is also perceived to be attributable to an abundance of human capital resulting from investment in education (World Bank, 1993).

At the macro level, investment in a country's education sector as a whole also contributes to economic growth (Romer, 1990; Barro, 1991; Petrakis and Stamakis, 2002). Some academics illustrate the positive effects of education expenditure on economic growth (e.g. Poot, 2000; Sylwester, 2000), while McMahon (1999) shows that previous estimates of the financial and non-financial returns to education have been underestimated. Additionally, Drèze and Sen (2002) argue that China's remarkable

economic growth in the post-reform period can be attributed not only to economic restructuring itself but also to pre-reform social change, including the spread of mass education as a result of huge investment in the sector that has stimulated market operations. This implies that investment in education may take time to make an impact on the economy.

On the other hand, based on a cross-country study, Pritchett (2001) argues that there is no correlation between improved educational attainment amongst the labour force and the growth rate of output per worker. Alternative linkages are proposed: firstly, the proliferation of education notwithstanding, a negative institutional and governance environment will slow economic growth; secondly, the marginal returns to education fall rapidly as the supply of an educated labour force expands while demand remains stagnant; and thirdly, low quality education does not create any human capital (ibid).

Kremer and Thomson (1998) explore the reasons why, rapid education expansion notwithstanding, economic growth in sub-Saharan Africa has been lower than in other developing regions. They hypothesise that the employment of a greater number of junior workers as senior employees retire may be an imperfect substitution in terms of maximising production and providing on-the-job training, as they have diverse levels of expertise in various tasks. It thus seems that a range of human capital may be required for growth. Indeed, these studies suggest that human capital should be understood in broader terms, including its social, economic and institutional contexts; the labour market; and the quality of education delivery.

2.3.2.2. The Rate of Return to Education

At the micro level, human capital theory holds that the educated enjoy higher lifetime earnings than the less or uneducated, since it is assumed that schooling increases worker productivity. For example, education can lead to increased agricultural productivity (Lockheed et al., 1980a; 1980b). Just as physical capital can be analysed in terms of cost and benefit, human capital – education in particular – is similarly be evaluated as private (individual) and social (society as a whole) rates of return to investment; most frequently by adopting the earning function regression methodology named after

Mincer (1974). This is generally based on years of education, years of labour market experience, and earnings – mostly in logarithmic form (ibid).

The conventional knowledge deriving from the enormous body of research on the rate of return to education can be summarised as follows: 1) the rate of return to education falls with the level of economic development; thus, developing countries are more likely to record higher rates of return due to a scarcity of highly educated workers; 2) private returns are higher than social returns; 3) in general, women in the labour market show a higher rate of return than men; 4) private rates of return to primary education are higher than those to secondary or tertiary education; and 5) the rate of return to general education tends to be higher than that to vocational or technical education (Psacharopoulos, 1994; Psacharopoulos and Patrinos, 2002).

In previous studies on India, the private rate of return to primary education was found to be lower than that to secondary education (Banerjee and Knight, 1985; Unni, 1995; Santhapparaj, 1996; Kingdon, 1998; Kijima, 2006b; Tilak, 2007). Indeed, rates of return to primary education were sometimes even recorded as negative (Santhapparaj, 1996; Kingdon, 1998).

Similarly, research in other contexts found that the lower levels of schooling did not lead to increased wages but that high levels were more likely to increase wages (Kingdon and Unni, 2001); while secondary and technical diploma/certificate education was more financially rewarding in terms of wage employment (Duraisamy, 2002).

In fact, some of the conventional patterns of return are not evident in recent studies across nations. Colclough et al. (2010) review the empirical evidence for a pattern in return to education, suggesting that in recent years, the rate to primary education may not have been higher than that to post-primary schooling. Banerjee and Duflo (2011) argue that each year of education increases earnings proportionally. However, they also found that parents in developing countries believe that the rate of return is subject to an ‘S’ curve and consequently invest in their children’s education unevenly (ibid); although there is no clear evidence to support this.

Nevertheless, existing studies imply that in contrast to the conventional pattern for the general rate of return to education, the rate of return to additional schooling in India may level off for many years and only perhaps increase in respect of higher education. This shows that in this context, there are low gains from the early years of schooling and larger gains only from subsequent education at the highest levels.

It is not only the way educational attainment is manifested that has been found to differ from international findings but also gender, the rate of return to education for females proving to be lower than that for males in India (Duraisamy, 1988; Malathy, 1989; Kingdon; 1996).

This suggests that the aggregation of national studies should be closely examined in the context of each country and, even so, the approaches of conventional studies (e.g. Psacharopoulos, 1994) may be assumed to have methodological flaws in the calculation of rates of return based on education, quality of data, and sample bias; as well as unconsidered variables such as family background and quality of education (e.g. Bennell, 1996; Lauglo, 1996; Samoff, 1996). Such shortcomings might be why recent studies on India contradict the conventional pattern.

In response to various ongoing challenges to the measurement of rates of return to schooling in the economics of education research, the following have been proposed: refinement of the model to include instrumental variables, control for family background, quality of education, and so forth; consideration of additional socio-economic input and output variables; and improved methods of data collection (e.g. Card, 1999; Heckman and Urzúa, 2010).

2.3.2.3. Locating Human Capital Theory in a Broader Context

The well-known original research by Lockheed et al. (1980a; 1980b) is often cited as an example of robust linkage between human capital and agricultural productivity in their finding that four years of education make a significant difference to farming productivity *in a modern environment* (King et al., 2005). Such an enabling context in

terms of cultural, economic, political and social conditions is necessary if human capital theory is to function in practice.

Nevertheless, Appleton (2000) shows that in sub-Saharan Africa and some other developing countries, the estimated effect of education on agricultural productivity is often substantial but generally statistically insignificant. Similarly, in an empirical study on the effects of an Indonesian school building programme on income, Duflo (2001) found that the earnings of the generation who had benefitted from the initiative in relation to older generations who had not benefitted from it were significantly higher in areas where more schools had been constructed. Moreover, the earnings of the old cohort increased more slowly in regions in which average educational attainment grew faster because more schools had been built (Duflo, 2004). Although the effect on earnings in different industries or occupations in which different skills and knowledge are required is likely to vary, Duflo's (2004) study suggests that older workers are not absorbed in industries subject to more rapidly increasing rates of pay than others, and that the accumulation of human capital does not have a positive spill-over effect on the labour force as a whole.

In India, Rosenzweig (1995) empirically analyses rates of return to primary education in different regions of the country during the Green Revolution that was initiated in the mid-1960s. The study found that returns to education from 1971 to 1982 increased in regions where new high yield variety (HYV) seeds had been planted, while they remained constant in areas that were unsuitable for the new HYV seeds. Additionally, Dutta (2006) argues that evidence that the return to education is significantly higher and increases over time in respect of salaried workers in comparison to casual workers, and the widening of the wage gap between graduation from primary and tertiary education, can be attributed to the economic reforms of the 1990s.[11]

It thus seems that in order to increase earnings, there must be economic opportunities that give educated workers the opportunity in the labour market to take advantage of

[11] India initiated economic liberalization that instituted a market economy in 1991 (e.g. Joshi and Little, 1996).

both their schooling and skills. Therefore, it is indeed difficult to generalise the rates of return to education in developing countries using only a limited number of variables and without considering the broader context.

Some tracer studies concerned with linkages between education, employment and income in sub-Saharan Africa suggest that schooling per se might not always be an advantage in gaining waged employment; although education generally increases the earnings of those who already have jobs (Wagner et al., 1989; Al-Samarrai and Bennel, 2003; Bennel et al., 2006).

Screening theory challenges the human capital assumption that schooling in itself increases productivity.[12] The theory in principle holds that education records yield useful information in identifying individuals with higher inherent productivity potential in that educational attainment serves as a signal for employers (Spence, 1973).[13] This theory highlights the asymmetry between information from employers and employees. Accordingly, education outcomes in the labour market might not be as straightforward as human capital theory suggests.

Dore (1976) identifies ten mechanisms for establishing linkages between education and earnings in which education is not always the most crucial element, but which are dependent on historical and structural education background, employment and economic development, and quality of education provision. Thus, Dore (ibid) argues that earning structures are often embedded in institutional settings irrespective of productivity. This implies that education should be located within an institutional and broader context that incorporates the labour market.

Quality of education as well as years of schooling is critical to learning and labour market outcomes. If merely sending children to school generates human capital, the

[12] For reviews of screening theory that highlight theoretical models as well as empirical studies, see e.g. Groot and Hartog (1995), and Brown and Sessions (2004).

[13] In screening theory, the principal role of screening is a signalling function. However, one group contends that inherent productivity is not changed through education, while the other argues that schooling may increase inherent productivity.

criteria for its generation become highly questionable. In fact, some studies even show that rates of returns to education in general are lower when education quality is taken into consideration (e.g. Behrman and Birdsall, 1983). Moreover, education can have different meanings in different places at different times, and even a single year of schooling has different significance in different contexts (Breton, 2004). Thus, being socially, economically and historically constructed, education is highly context specific (Fine and Rose, 2001).

Unfortunately, when applying human capital theory to policy making in developing countries, research largely neglects to take account of education (or formal schooling in a narrow sense) with regard to the whole of society or under changing economic circumstances. Shavit et al. (1998) argue that the rate of return calculation depends on a number of contextual factors such as the institutional structure of the national education system, and that many of these factors cannot easily be incorporated into empirical studies. However, education is not isolated from society, but should be understood in the context of the social milieu.

2.3.2.4. Human Capital Theory in Contexts other than Formal Waged Labour

Due to data availability, the application of human capital theory in developing countries usually addresses regular waged labourers. However, such formal sector employees generally account for a small proportion of the total labour force of these countries (ILO, 2002). Only a few attempts have been made to examine the rates of return to education for informal sector workers in the South; and these have achieved mixed results, meaning that the applicability of human capital theory to informal sector workers remains inconclusive (Lewin, 1993).

On the one hand, it has been argued from the perspective of segmented labour market theory that human capital is largely irrelevant or less relevant to individuals engaged in the informal sector (e.g. Taubman and Wachter, 1986). Such positions are typically subject to poor working conditions, and low remuneration with few benefits, training opportunities, or chances of promotion, and are characteristic of a sector in which there is a high turnover of employees. Moreover, it has been shown that human capital

accounts for low informal sector earnings and the impact of training on informal activities remains minimal in developing countries (Teilhet-Waldorf and Waldorf, 1983; Tueros, 1995). It has also been demonstrated that the return to education in the informal sector is lower than that in the formal sector in Central American countries (Funkhouser, 1996). Furthermore, in India, the earnings of low-educated workers seem to be driven entirely by formal sector experiences even if they have work experience in the informal sector (Saha and Sarker, 1999).

However, on the other hand, some studies have found that there is a positive correlation between education and income even in the informal sector in a developing world context such as Latin America (Carnoy, 1980; Watkins, 2000); and that rates of return to female education in the informal sector in Thailand are higher than those for males (Watkins, 2000). Indeed, it has been found that general education above a certain basic threshold permits a real increase in entrepreneurial productivity (Hallak and Caillods, 1980).

Aside from the informal–formal sector dichotomy, there is a lack of research on employment statuses other than waged worker. Glewwe (2002) suggests that future research should exclude government employees – whose wages are less likely to reflect differences in productivity and market prices than those of private sector workers – and substitute them for the self-employed, as the majority of workers in developing countries are not formal sector wage earners. However, a singular exception to the author's knowledge is a study that found a relatively higher return to self-employment in India and Pakistan (Aslam et al., 2012). Indeed in India, the self-employed make up a significant proportion of the labour force (see Chapter 3). Accordingly, there is a need to examine the relationship between education and earnings in this group.

2.3.3. Factors that Affect Subjective Wellbeing

Research on subjective wellbeing across countries suggests that those with higher levels of per capita GDP tend to demonstrate greater satisfaction (Diener and Oishi, 2000; Lora et al., 2009; Sacks et al., 2010). At the same time, it has been found that there is a weak correlation between national wealth and subjective wellbeing: Easterlin (1974)

contends that subjective wellbeing is enhanced in line with rising income only up to a certain point. This indicates that subjective wellbeing in some developing countries is not necessarily low.

Diener and Seligman (2004) argue that economic indicators play an important role in the early stages of economic development when basic needs are yet to be met. However, as society becomes wealthier, factors related to social relationships and job satisfaction rather than monetary wealth tend to grow in importance (ibid). Bjornskov et al. (2008) conclude in their empirical analysis of cross-country data that variables that have been found to significantly affect satisfaction in the existing literature – such as national income, state benefits, unemployment rate, and higher education opportunities – do not necessarily determine perceptions of wellbeing.

Nationally, income tends to positively affect subjective wellbeing, but proportionally similar rises in earnings yield a lower increase in subjective wellbeing at higher income levels (Oswald, 1997; Frey and Stutzer, 2002; Sacks et al., 2010). However, some studies hold that the effect of economic growth on subjective wellbeing is insignificant in general, and may even have a negative influence during periods of rapid development (e.g. Easterlin, 1974; Deaton, 2008).

In the United States and Europe, inflation and unemployment have been shown to adversely affect subjective wellbeing (Di Tella et al., 2001). From an analysis of longitudinal British data, Burchardt (2005) found that those who experienced a fall in income were less satisfied than those who had a constant income; while those who enjoyed pay rises were no more satisfied than those who had a constant income. It may thus be concluded that in some contexts, income does not increase subjective wellbeing beyond a certain level.

Nevertheless, it has been pointed out – mainly in the literature on developed countries – that relative income does play an important role in subjective wellbeing (e.g. Frey and Stutzer, 2002; Van Praag and Ferre-i-Carbonell, 2004). Such a trend is also applicable to developing countries (Graham and Felton, 2006; Jiang et al., 2012).

At the same time, the evidence in the existing literature on the relationship between relative income and subjective wellbeing among poor households in developing countries is inconclusive. Thus, relative income has failed to emerge as a significant determinant of subjective wellbeing among the poor, but this has been found to be the case among the non-poor (Kingdon and Knight, 2006; Ravallion and Lokshin, 2010). In a slightly different vein, it is argued that it is those in the middle-income bracket rather than either the extremely wealthy or poor who are the most dissatisfied (Graham and Pettinato, 2002).

However, relative poverty has been shown to have a negative effect on subjective wellbeing in terms of consumption and basic services even among poor households in which a market-oriented lifestyle is not fully realised (Fafchamps and Shilpi, 2008). The question thus arises as to whether absolute income and/or relative income play any role in subjective wellbeing among low-income households such as those in slums; and if so, how education is related to linkages between income and subjective wellbeing.

It has been pointed out that although income in developing countries has an effect on subjective wellbeing, it is not exclusively associated with it and there are other factors that affect satisfaction levels (e.g. Kingdon and Knight, 2006; Camfield et al., 2009; Knight and Gunatilaka, 2011). In this regard, there has been much less analysis of the effect of education. However, the existing literature suggests that schooling does have a positive influence (Graham and Felton, 2006; Kingdon and Knight, 2006). Moreover, evidence indicates that primary education tends to increase life satisfaction in general, with the exception of those subsisting on extremely low incomes (Bjornskov et al., 2008).

It has also been found that primary education tends to decrease life satisfaction in Bangladesh, while this is not the case in Thailand (Camfield et al., 2009) – the latter being a higher income country than the former. This indicates that education tends to increase subjective wellbeing only after absolute income reaches a certain level. There is an argument that single female household heads with higher education levels tend to

assess themselves as poor due to discrimination in the labour market and fewer opportunities than men for socio-economic mobility (Benfield, 2008). Therefore, it is not clear whether education per se increases subjective wellbeing, or if education in influencing absolute income, relative income, or occupation type, has any effect on subjective wellbeing.

Attempts have been made to account for anomalies in the relationship between income and subjective wellbeing. Some common explanations include the following. Firstly, adaptation – the so-called 'hedonic treadmill' – paradoxically operates as a kind of defence mechanism (Brickman and Campbell, 1971 cited in Clark, 2012; Graham, 2011). Thus, subjective wellbeing tends to increase as income rises, but greater affluence is also apt to be accompanied by higher aspirations and expectations, which results in modest subjective wellbeing in wealthier individuals. At the same time, they seem to be unquestioning of the conditions of an adverse environment such as high levels of crime, corruption, poor healthcare, and so forth, finally adapting to this lowering of expectations. This is why poverty or low income does not necessarily translate into a fall in subjective wellbeing.

Secondly, as Kahneman and Tversky's (1979) prospect theory postulates, the value function is attuned to the gauging of changes or differences rather than absolute magnitudes. Similarly, Graham (2011) summarises set point theory based on the psychology literature. It is argued that subjective wellbeing is actively controlled and maintained by a set of psychological devices that function under the control of one's personality; and each individual is assumed to have a happiness level that they consistently adhere to over time, even after a major joyful or sorrowful event. In this regard, the level of subjective wellbeing might fluctuate within a narrow range over the short term, but these devices regulate an ultimate return to the original level (Cummins et al., 2003).

Thirdly, Maslow (1954) argues that subjective wellbeing tends to rise as long as attempts at self-actualisation are made. Similarly, subjective wellbeing has been held to depend not on adjustment to circumstances but upon innate biopsychological needs

(Veenhoven, 1991). This implies that income increases subjective wellbeing in as far as it meets psychological or inherent needs.

Fourthly, some commentators place greater emphasis on the cultural and religious beliefs of a particular society (Diener and Oishi, 2000; Camfield et al., 2010). For example, Camfield et al. (2010) note that dissatisfaction is regarded as a lack of respect for Allah in Bangladesh, while positive feelings may not necessarily be relevant to satisfaction with life in Thailand.

Finally, it has been suggested that people's reference groups and reference points affect their subjective wellbeing (Easterlin, 1974). Thus, some studies argue that individuals judge subjective wellbeing with reference to a standard or norm derived from past or ongoing experiences (Duesenberry, 1959; Easterlin, 1974). Others highlight spatial importance. For example, rural–urban migrants tend to compare their circumstances with those of their new urban neighbours rather than the standard of living they left behind in the countryside (Fafchamps and Shilpi, 2008; Knight and Gunatilaka, 2011).

The present study seeks to determine whether education per se, or education as an influence on employment and income, necessarily increases subjective wellbeing, and to explore the possible causes of any anomalies to such a dynamic.

2.4. The Access of the Poor to Education

2.4.1. Overview of Access to Education

Since poverty has a significant impact on the deprivation of an individual throughout their life, it can be transmitted to the next generation. Education as a means of poverty alleviation has great potential in breaking the vicious circle of intergenerational poverty due to its perceived pivotal role. Evidence suggests that parental education has a significant impact on their children's schooling (e.g. Strauss and Thomas, 1995). While such an influence – particularly that of the mother – is not supported by some empirical studies on developed countries (Behrman and Rosenzweig, 2002; Plug, 2004; Black et al., 2005), research from the developing world shows a much more positive correlation (Behrman et al., 1999; Kabeer and Mahmud, 2009).

The strong association between parental and child levels of education in developing countries implies that escaping poverty through schooling might not be easy for poorer households, particularly in contexts in which the overall level of education is improving and a similar level might not have the same effect as it did on previous generations. It is therefore important to understand how children from poor households gain access to schooling, and if they are ultimately empowered to escape poverty through education.

Before reviewing the literature on the access of the poor to education, it should be noted that, paradoxically, schooling can also play a significant role in reinforcing existing hierarchical and socio-economic relations; that is, education structurally perpetuates the exclusion of certain groups in society. Freire (1970) argues that schooling is a means of maintaining social control. Bowles and Gintis (1976) also point out that education can serve to prepare children to become workers who blindly accept inequality and vertical power relations, submissively entering such a labour market rather than striving for equal opportunities and personal development.

The gender relations status quo can be reinforced by the school environment through textbook content, curriculum organisation, classroom dynamics, and teacher attitude (Stromquist, 1998). In India, discrimination against lower castes is also ingrained into the consciousness of teachers and pupils alike, and reflects pedagogical exchanges in the classroom (Bhargava, 2003). In spite of such cultural attitudes, it is vital that girls and poor people should be educated as, in addition to its intrinsic value, schooling has instrumental worth in that it can enhance the quality of life. The existing literature suggests that it facilitates higher earning potential, leads to improved health, and raises the individual's awareness of their own rights and those of subsequent generations (e.g. Gradstein et al., 2004; Hannum and Buchmann, 2005; Lochner, 2011).

The voluminous body of literature on children's access to education – primary in particular – suggests that the poor are more likely to be excluded (e.g. UNESCO, 2005). In short, the poor by definition cannot afford to keep their children in school, education for all (EFA) policies notwithstanding. Moreover, it has been suggested that poverty or

low income adversely affects the quality as well as the quantity of education pupils receive (e.g. Alderman et al., 1997; Behrman and Knowles, 1999).

In addition, some studies have found that school enrolment only increases when the net benefits of education outweigh its costs. Thus, the direct and opportunity costs of education disproportionately burden children in lower-income households (Tilak, 2009). Indeed, according to a United Nations Children's Fund (UNICEF) urban area survey of seven Indian states, the monthly household expenditure on primary education per child as a proportion of MPCE is remarkably high – ranging between 11% and 21% (Mehrotra, 2006, p.37).

Fee-free education has been introduced to mitigate the cost of schooling, and ultimately to improve school enrolment in some developing countries, including India. However, it is widely acknowledged that even in government schools education does not come without costs. Even if tuition is free or there is merely a nominal charge, and other incentives such as uniforms and textbooks are provided for pupils, additional expenditure on such items as stationery, exercise books, transport, boarding, and meals must be borne by the household (Tilak, 1996; Mehrotra, 2006).

In India, exclusion from formal education is not only closely related to low economic status but also discrimination associated with gender, caste, ethnicity, region and religion (Borooah and Iyer, 2005; Kingdon, 2007; Rustagi, 2009; Bhalotra and Zamora, 2010; Govinda, 2011). Although education policies and interventions aim to include children from such cross-cutting disadvantaged backgrounds, monetary poverty in terms of access to education is often not clearly addressed.[14] For example, recent government education programmes have particularly targeted girls, scheduled castes (SCs) and scheduled tribes (STs);[15] however, the effects of such recognised disadvantaged status are weaker in locations in which conditions associated with wealth, land distribution, and/or caste composition are more favourable towards these groups (Borooah and Iyer, 2005; Dostie and Jayaraman, 2006).

[14] In this regard, it is worth noting that not all SCs and STs are financially poor.
[15] See Chapter 4 Section 4.4.4 for definitions of SCs and STs.

Nevertheless, children from poor households may be withdrawn from school following shocks such as a natural disaster or when funds are needed for unforeseen medical expenses (UNESCO, 2005; 2007). Evidence also suggests that children's education is negatively affected by a temporary reduction in household earnings (Jacoby and Skoufias, 1997). Maintaining household income levels may lead to negative outcomes in terms of children's schooling because they are likely to receive less care and older ones – girls in particular – are required to shoulder greater responsibility with regard to domestic chores and looking after younger siblings (UNESCO, 2005; 2007). Those who consequently drop out of school often withdraw on a long-term or even permanent basis (PROBE, 1999), which jeopardises their chances of escaping poverty.

The employment of children takes many forms, some of which can have a positive educational and developmental impact (e.g. Moore, 2000). However, international efforts have been made to eliminate the worst forms of child labour.[16] The ILO estimated the global figure of those engaged in these categories of employment to be 115 million in 2008 (Diallo et al., 2010). Indeed, poverty and child labour are mutually reinforcing phenomena, and children in poor households are more likely to be sent to work than those from better-off families (Udry, 2006). Furthermore, employment tends to reduce children's education levels, thus leading to the continuation of the poverty circle into the next generation (Psacharopoulos, 1997; Boozer and Suri, 2001). Therefore, a major traditional approach to the eradication of child labour – its worst forms in particular – is the provision of education.

Nevertheless, there are two contradictory views on the correlation between education access and child labour. On the one hand, the conventional argument is that children cannot go to school if they are obliged to work. On the other hand, it is contended that

[16] Article 3 of ILO Convention No. 182 (1999) defines the worst aspects of child labour as, "(a) all forms of slavery or practices similar to slavery, such as the sale and trafficking of children, debt bondage and serfdom, and forced or compulsory recruitment of children for use in armed conflict; (b) the use, procuring or offering of a child for prostitution, for the production of pornography, or for pornographic performances; (c) the use, procuring or offering of a child for illicit activities, in particular for the production and trafficking of drugs as defined in the relevant international treaties; (d) work which, by its nature or the circumstances in which it is carried out, is likely to harm the health, safety or morals of children."

children drop out of school first and then find a job (PROBE, 1999; Banerji, 2000). Whichever is the more accurate root of causality, child labour doubtlessly has a long-term negative effect and leads to a higher probability of future poverty (Harper et al., 2003). Therefore, the question arises as to whether children in poor households should only have access to school if their families can sustain a minimum standard of living, and, if this is the case, how such a policy can be implemented.

The school environment itself can also affect children's education opportunities (Hanushek, 1995; Case and Deaton, 1999). A low quality of education arising from limitations to physical infrastructure, inadequate teaching standards, and financial and human constraints on the expansion of school facilities in developing countries may discourage children from attending school. In this regard, empirical studies from sub-Saharan Africa suggest that the quality of education on offer affects children's age of enrolment and grade attainment (Glewwe and Jacoby, 1994; Bommier and Lambert, 2000).

In India, Drèze and Kingdon (2001) found that facilities such as sound school infrastructure, provision of a midday meal, and a desirable pupil to teacher ratio had a positive influence on primary school attendance amongst girls in particular. Conversely, PROBE (1999) provides a detailed description of how a poor school environment, including inadequate infrastructure, sub-standard teaching, uninspiring learning activities, and social discrimination, discourages children from attending in rural areas. Unfortunately, a PROBE resurvey in 2006 found that most children in rural India did not have access to high quality education; the fact that there had been significant positive changes in terms of overall school enrolment and disparities across gender and social groups notwithstanding (De et al., 2011).

Community factors may also play an important role in children's education. One argument is that opportunities and earning potential in the local labour market affect performance at school (Jeffrey et al., 2004; Kingdon and Theopold, 2008). Another contention is that a community empowered to participate in its school through decentralised decision making generally results in improved child access and retention

rates (Govinda and Bandyopadhyay, 2011).

There have been various Indian education policy initiatives to encourage community involvement in and monitoring of local schools with the aim of increasing participation, including that of those who have dropped out of the system. However, it is not easy to persuade a community to become more involved in decision making. Evidence suggests that neither official information provision nor helping community members to gather their own leads to greater local involvement in the system or improves education outcomes (Banerjee et al., 2010).

Even if they are able to access and persevere with their education, children in the South tend to learn much less than the curriculum prescribes (Glewwe and Kremer, 2006). Summarising the existing literature on the quality of education in developing countries Glewwe and Kremer (ibid) conclude that both primary and secondary school pupils advance considerably more slowly than their counterparts in the developed world.

In India, the non-governmental organisation (NGO) *Pratham* (2013) found that the proportion of grade 1 pupils who could not recognise the letters of the alphabet or count from 1 to 9 was 43.4% and 39.6% respectively; while only 68.2% of grade 5 pupils were able to read at least grade 1 textbooks, and the percentage of those who could perform simple mathematical subtraction was even lower – at 50% (Pratham, 2013)

In addition, Aggarwal and Chugh (2003) found that the overall achievement of Indian slum children attending government school tended to be low and was particularly so in respect of the higher grades. The authors also found that their subjects attained lower examination results – in mathematics in particular – than their counterparts in unrecognised private schools (ibid). These findings are largely consistent with an empirical analysis of pupils' cognitive skills in three different types of school in urban Uttar Pradesh by Kingdon (1996), which concludes that the quality of teaching and standard of academic performance amongst pupils in private unaided schools is higher than that of either government or private aided institutions.

2.4.2. Education in Urban and Slum Areas

The growth of urban populations is accelerating in many developing countries, a phenomenon that is often perceived as being at least partially driven by the attractions of improvements in infrastructure and the accessibility of services, including education. Desired urban residence leads to a belief in the advantages of migration, an important element of which is the conviction that the better quality of education there means that migrants can improve their children's life opportunities at their urban destinations (UNDP, 2009).

Yet, the limited number of studies undertaken in developing countries show that seasonal or temporary migrant children suffer in both situations: their education at home is interrupted for long periods, and there is no guarantee that they will be able to enrol in or complete school at their migratory destinations (Liang and Chen, 2007 [China]; Smita, 2007 [India]).

It is also recognised that the perceived urban advantage does not apply to all migrant children, particularly those who grow up in slums in developing countries (UNESCO, 2007). There is often a reluctance to regularise informal settlements, or provide basic infrastructure and services, because slum dwellers are often regarded as temporary migrants (UN Millennium Project, 2005a). Moreover, from a policymaker's point of view, it might not be easy to build more schools following an increased influx of migrants. Wratten (1995) argues that the urban poor might be denied access to basic services because they lack political influence although it is noted that there has recently been some expansion and improvement of basic services for this group in some developing countries.

Moreover, the recent trend towards outsourcing the provision of basic services to the private sector under the banner of public–private partnership, and the growth in the number of private providers (Govinda, 2011) could prevent equitable access and lower the quality of services provided to certain groups that lack economic influence. Thus, slum dwellers might have no alternative but to share limited and often degraded infrastructure, or even to depend on private "informal" enterprise as a substitute for

public services. For example, they may resort to non-state providers of education, such as low-fee private schools (Tooley and Dixon, 2006; 2007).

Studies on Kenyan slums, have found that children's access to education diminishes as they get older (e.g. Mugisha, 2006). Available information suggests that the determinants of access to primary education in Bangladeshi slums are household wealth, location (Cameron, 2011), and parental education level (Kabeer and Mahmud, 2009).

In India, where, according to the Census of India (2011), slum dwellers account for 17.4% of the total population in urban areas (Government of India, 2013c), the limited number of previous ad hoc attempts at slum studies have been unable to fully examine children's education opportunities. Nevertheless, the NSS found that approximately 87% of slums had a government primary school within a distance of one kilometre in 2008/09 (Government of India, 2010b). However, this does not mean that there were any schools actually located in slum areas (Aggarwal and Chugh, 2003), or that all slum children attended school (Jha and Jhingran, 2005).

Moreover, Banerji (2000) shows that there is a high dropout ratio amongst primary school pupils in Mumbai and Delhi slums, and that such children tend not to be employed either. Thus, the close proximity of a school notwithstanding, considerable numbers of slum dwellers remain undereducated. Slum studies in some large Indian cities identify economic problems as a major obstacle to school access (Jha and Jhingran, 2005); indeed, the poorer the household, the higher the burden of education seems to be.

The available body of research on Indian slum children is generally confined to school-based investigations of private schools (Tooley and Dixon, 2007), and focuses on case studies of youngsters in a few selected slums (Banerji, 2000; Aggarwal and Chugh, 2003; Chugh, 2004; Husain, 2005; Jha and Jingram, 2005). Education in urban slum areas has not been adequately researched (Govinda, 2002). In particular, factors such as poverty and other related causes of deprivation that prevent slum children from gaining access to school have been under-researched.

As the quality of Indian government schools has deteriorated over the years, middle and upper class households have turned to private education for their children (Kumar, 2008). Choosing a primary school – if not a nursery school – has also become an increasingly critical decision, since it is likely to have a profound effect on the child's ultimate fortune.

Some studies show the prevalence of fee-paying private schools even in slum areas; since the government might not have sufficient resources to achieve education for all private schools are a welcome alternative in the sense that, at least theoretically, more children have access. For example, Tooley and Dixon (2006) highlight the growing number of private schools in notified slum areas of Hyderabad that serve to educate children from low-income families – although this study does not define 'low income'. The authors conclude that as quality plays an important role in school choice, private schooling seems to meet a growing desperation for education and is perceived to offer a higher standard than its government counterpart (ibid).

However, if private schooling is the choice of the slum dweller, it is necessary to understand the circumstances under which children might gain consistent access. In fact, in contrast with some slum studies that have found low-fee private schooling to serve the needs of the poor (e.g. Tooley and Dixon, 2006; 2007), an education study of slum areas in Delhi found that few families could bear the cost of educating their children, 10% to 20% dropping out of private unrecognised institutions by the end of the academic year due to an inability to pay the fees (Aggarwal and Chugh, 2003).

An additional issue with regard to private schooling is the hierarchy it is subject to. In recent years, the correlation between a household's economic wealth and the school it sends its children to has become increasingly clear (Hill et al., 2011; Drèze and Sen, 2013). Low-fee private schools in particular might not meet accepted standards in terms of school facilities or teachers' qualifications and salaries (Goyal and Pandey, 2012). Therefore, private schools do not necessarily provide a higher quality of education than their government counterparts. Moreover, the institutions to which slum children have

access are likely to be very different from the English-medium private schools that the elite send their offspring to.

Low-fee private schools might play a certain role in improving access to education, but it is by no means certain that they improve equitable access to a high standard of schooling; and clearly, a substandard education affects children's future socio-economic opportunities and chances of ultimate escape from poverty.

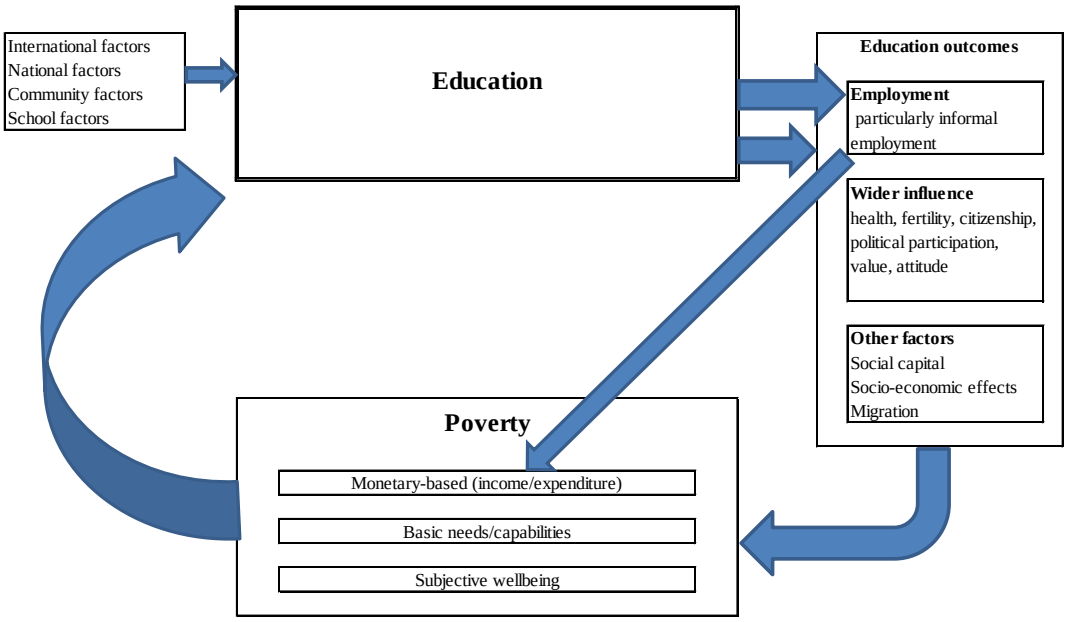
Some NGOs also provide basic education in various innovative ways for disadvantaged urban children, including those living in slums and child labourers (Chakrabarty, 2002; Nambissan, 2003; Bangay and Latham, 2013). Learning opportunities through informal education programmes facilitated by the government and NGOs are also increasingly available for poor and disadvantaged children (ibid.). Some attempt to deliver low-cost, high quality education while addressing the issue of equity (Bangay and Latham, 2013).

These initiatives provide education opportunities and wider options for those who would otherwise not have the chance to learn. Yet, at the same time, such informal schooling cannot easily accommodate all children of the poor; thus, some are still excluded from mainstream education.

2.5. Conceptual Framework

Figure 2-1 shows a simplified version of the conceptual framework designed for this study. It can be seen that the relationship between education and poverty is bi-directional. It may be noted that each relationship in the diagram constitutes a complex and interlocking stage in the process. The implication is that if an individual's schooling does not result in poverty reduction, their children's education is also likely to be negatively affected; thus, the vicious circle of ineffectual education and deprivation continues for the rest of the first individual's life as well as that of future generations.

Figure 2-1 Conceptual framework: The potential influence of education on poverty and vice versa



Source: The author.

2.5.1. Linkages between Education and Poverty, and Poverty and Child Education

As with other social groups, slum dwellers can be educated at different types of institution, such as formal schools, informal schools, and vocational training centres; or through in-service training at work for different lengths of time. Access to various types, levels and degrees of education is expected to generate a wide range of outcomes, including the acquisition of different skills, values and behaviours; 'signalling' or qualification; increased productivity; participation in the public sphere; or any combination of these (Rose and Dyer, 2008).

The initial outcome of this process results in intermediate and interrelated factors that ideally lead to poverty reduction, principally through the manifestation of three factors. The first constitutes earnings through livelihood opportunities – employment, particularly informal employment in the case of slum dwellers – which could be regarded as representing the main instrument in the alleviation of income/expenditure poverty, since the poor largely depend for their livelihood on labour rather than assets (e.g. Sacks, 2005).

The second factor is the broad range of effects of education. Schooling is regarded as

possessing externality, which influences a wide range of areas, such as health, nutrition, fertility, political participation, and better decision making (Lochner, 2011).

The third factor constitutes other socio-economic elements. Education may lead to enhanced social capital, migration and the improvement of other socio-economic aspects, which in turn can make a positive impact on poverty reduction (Lipton and Ravallion, 1995).

These interrelated issues – although only the first is examined in this thesis in detail – are presumed to influence the factors associated with deprivation reviewed in this chapter, that is, monetary poverty, basic needs/capabilities, and subjective wellbeing. The linkages and processes that determine how different types and levels of education lead to different forms of poverty alleviation are examined separately and the results compared to assess whether schooling has the desired effect on poverty reduction.

It should be noted that the unit of analysis adopted by this study for assessing the linkage between education and poverty employs disaggregated data on the household and individual respectively, while the unit of analysis for determining the correlation between poverty and education is the individual child only.

2.5.2. Approach to the Present Study

The main approach in this study is quantitative, but such a methodology is insufficient by itself to comprehensively investigate education–poverty and poverty–child education linkages in order to understand schooling outcomes (or rather the results of lack of schooling, since slum dwellers' education levels tend to be low); why education leads to the reduction of some aspects of poverty but not others; or why some children are marginalised in terms of their education. In this regard, qualitative augmentation is also necessary.

Hulme (2004) tracks one particular poor household in rural Bangladesh, capturing the interplay of various causes of poverty, including a low level of education. The household perceived themselves as poor not only because they were uneducated, but

also due to the fact that they had no opportunity to improve the skills necessary to escape from poverty. However, this study fails to provide insights into how a lack of basic education or skills leads to poverty; that is, whether such deficiency has a direct adverse impact on already limited employment opportunities, or whether such a situation influences the household's economic wellbeing through other factors, such as low productivity, lack of participation in the public sphere, and so forth (Rose and Dyer, 2008).

Poor people may distinguish between education and literacy/numeracy. For example, the founder of the India-based Self-Employed Women's Association (SEWA), Bhatt (2006), describes the lives of such women engaged in different occupations in the informal sector, such as rag picker, vendor, seamstress, and embroiderer among other jobs at the bottom of the economic ladder. This study implies that illiteracy and innumeracy rather than a lack of formal education or skills is an impediment in any self-employed occupation that involves bookkeeping, and negotiating with authorities or contractors, money lenders, etc. It thus seems that the working poor under investigation in this study valued literacy/numeracy more than schooling per se, but why they felt this is not analysed.

In tracking the activities of eight households in Vijayawada, Andhra Pradesh over a decade, Lalitha (2003) found that low-income parents regarded the schooling of their children to be essential for the successful exploitation of opportunities in the labour market. However, the poor quality of education and the negative influence of peers who, for example, stole and drank alcohol often resulted in children dropping out of or changing school. Thus, the quality of the school and learning environment seem to be important factors in determining education access and learning outcomes.

Together with other participatory research (e.g. Narayan, 2000; Narayan et al., 2000; Narayan and Petesch, 2002), Lalitha (2003) also shows that poor households who are interested in sending their children to school in order to improve future prospects seem unable to pinpoint precisely how education will benefit their children; the extent to which they have considered post-schooling employment opportunities; or, in terms of

direct and indirect costs, as well as the level of education the household can actually afford, the degree to which the returns to schooling can be expected to offset the expense of other household outgoings.

One study that employs both qualitative and quantitative approaches to research on poverty and education is Kabeer (2004), which utilises both panel data and qualitative analysis to examine poverty in rural Bangladesh from 1994 to 2001. The panel data show that the higher the household head's level of education the more likely it is they will be able to avoid sliding into income/expenditure poverty; while the case studies provide insight into social relations, and the structural causes of upward and downward mobility.

Thus, quantitative data analysis can identify and characterise the correlation between education and poverty and that between poverty and child education, but cannot clearly explain, why some remain poor while others move out of poverty, or how education or non-education is perceived in terms of escape from poverty. In order to capture the dynamics of deprivation among slum dwellers, it is necessary to understand the social, cultural, economic and political relationships that give rise to the different concepts of poverty and access to education with which the poor interact in their attempts to survive. Accordingly, it is crucial to employ both quantitative and qualitative approaches, the details of which are discussed in Chapter 4.

2.6. Conclusion

In this chapter, monetary poverty and non-monetary poverty, which includes basic needs, capabilities, and subjective wellbeing, were conceptualised. With regard to the relationship between education and monetary poverty, the literature generally points out that schooling plays an important role in monetary poverty at household level. However, it is not clearly understood whose education and what level of education matters in this relationship.

At an individual level, human capital theory holds that the educated enjoy higher lifetime earnings than those who have little or no schooling. However, the existing

literature suggests that in contrast to the conventional pattern for rate of return to education, in India, it may level off for many years and only increase substantially in respect of higher education.

Nevertheless, the chapter highlighted the importance of understanding the effect of education on earnings in specific social, economic, institutional, spatial, and temporal contexts, as well as taking into account the labour market and quality of education. Since it is not easy to incorporate all potential factors in estimating the effect of education on earnings, there is scope for adopting a qualitative approach to explain whether or not education influences earnings, and, if so, how.

The chapter also drew attention to the lack of research in this area on informal sector workers and the self-employed due to scarcity of data. Accordingly, there is a need to examine the correlation between education and earnings in these groups.

Similarly, there is little existing literature on the relationship between education and non-monetary poverty. In particular, subjective wellbeing is an emerging strand of research in the social sciences, and little is known about direct or indirect factors in developing countries that affect such wellbeing, including education, and its influence of education through the absolute or relative income it is able to command.

Access to education was discussed from a wide range of perspectives. Poverty, which is associated with other disadvantages related to caste, religion, gender, and so forth, as well as the availability of schools in the community and surrounding communities, affects access and retention. Although a wide range of education opportunities, such as non-formal schooling, literacy classes, and other interventions, are increasingly available to the poor, a hierarchical division of schools that reflects the socio-economic status of the family has intensified over the years in India. Thus, children from poor backgrounds might be accorded a lower quality of education than their more affluent counterparts, which results in a lower level of learning. As a consequence, those from poor households may have difficulty in escaping poverty.

However, education in urban India – and slum areas in particular – is still under-researched and there is thus a need to fill this knowledge gap. Accordingly, the present study examined the relationship between education and multidimensional poverty, and that between poverty and child schooling by adopting both quantitative and qualitative approaches.

Details of research context, and methodology and method follow in chapters 3 and 4 respectively.

Chapter 3 Research Context

3.1. Introduction

The purpose of this chapter is to briefly describe the context of the study in terms of education and poverty in order to understand the background of the analysis in this thesis. The structure of the chapter is as follows. Section 3.2 provides a general picture of poverty in urban and slum areas in India and Delhi. Section 3.3 describes the employment situation as an important aspect of monetary poverty. Section 3.4 depicts an overview of education in India. Section 3.5 discusses location of the analysis of education and poverty within the macroeconomic context. The findings of the chapter are summarised in Section 3.6.

3.2. Urban Poverty in India

3.2.1. Overview of Urban Poverty

Most research on poverty in developing countries focuses on rural deprivation because the poor are mainly concentrated in the countryside. Indeed, in India, approximately three quarter to four fifth of the poor population lives in rural areas (Government of India, 1993; 2009a; 2012). Historically, policy planners regarded migration in terms of the flow of the rural poor and destitute to cities in search of employment. As they became absorbed into low productivity informal sector jobs, urban poverty was – and still is – regarded as merely a spill-over effect of rural poverty (Dandekar and Rath, 1971). Urban poverty was thus to be solved by combating rural poverty.

Even in the theoretical literature, the relationship between urban and rural poverty dominates. For example, Bhagwati and Srinivasan (1974) argue that a production subsidy policy should be extended to agriculture. A wide range of poverty alleviation programmes have been implemented in rural India, mainly since the 1970s; however, the elasticity of urban poverty in comparison to rural poverty has been found to be negligible (Mitra, 1992). This suggests that rural poverty reduction programmes have little effect on urban deprivation.

Recent rapid growth in urban populations, a sizeable increase in rural–urban migration,

and relatively little attention to urban poverty have perhaps all contributed to multidimensional deprivation (e.g. Mitlin, 2005). For example, the total number of poor and undernourished individuals living in urban areas of developing countries has recently increased (Haddad et al., 1999). Moreover, it has been observed in many contexts that fee-free public education does not have the capacity to meet the demands of rising populations in urban areas.

In India, according to National Sample Surveys (NSS), the headcount poverty ratio registered a decline from 49.0% in 1973/74 to 25.7% in 2004/05 in urban areas (Government of India, 2009b).[17] However, the urban population below the poverty line increased from 60 million to 80.8 million over the same period (ibid.). Thus, clearly, the number of urban poor registered an overall rise during the last 30 years of the 20th Century.

Delhi accommodates a large migrant population originating from less-developed regions of the country (Government of Delhi, 2006). The Delhi poverty headcount ratio increased marginally from 14.69% in 1993/94 to 14.70% in 2004/05. However, the number of people living below the poverty line rose substantially from 1.6 million to 2.3 million over the same period (Government of Delhi, 2009). A trend was established, the number of those suffering deprivation unremittingly rising at least up to the late 2000s: according to the new system of poverty estimation, the number of Delhi residents subsisting below the poverty line increased from 1.9 million in 2004/05 to 2.3 million in 2009/10 (Government of India, 2012).[18]

[17] It should be noted that consumption periods differ in latter rounds of the survey. For example, that in respect of non-food items such as clothing, footwear and other consumer durables, education, and institutional medical care was altered from 30 days to a year following the 1999/2000 survey (Government of India, 2009a). Thus, poverty estimates have not been governed by exactly the same criteria over time.

[18] In 2011, the government revised its method for estimating the monetary-based poverty found mainly in rural areas by renewing poverty line basket and price indices. Urban poverty has not registered as drastic a change as rural poverty because the urban national headcount ratio in 2004/05 was used as a benchmark to draw the new poverty line and estimate poverty indices. This thesis largely adopts the old system of estimating poverty; see also Chapter 2.

3.2.2. Poverty in the Slums

With escalating rates of migration into urban areas, 17.4% of the urban population was found to be living in slums in the 2011 Census of India (Government of India, 2013c).[19] There is often reluctance to regularise informal settlements and provide them with basic infrastructure and services because rural–urban migrants are conventionally regarded as temporary residents (UN Millennium Project, 2005b). Slum dwellers thus find it difficult to access adequate infrastructure and services, including education. However, in addressing the problem, there is a lack of disaggregated data for urban areas, a vague definition of the term 'access to basic infrastructure and services', and insufficient cost adjustment for residence in urban areas (Mitlin, 2005; UN Millennium Project, 2005b).

A few poverty studies of households in Indian slums indicate that urban deprivation is spatially concentrated in such areas, although not all slum households fall below the poverty line (e.g. Mitra, 2003). Some surveys have sought to estimate the incidence of poverty in notified[20] Delhi slums. One such project found that the headcount poverty ratio in terms of households was 25.0% in 1999/2000 (Mitra, 2003), which was much larger than the figure of 8.2% for Delhi as a whole in the same year (Government of Delhi, 2004). Furthermore, in 2004/05, the headcount poverty ratio was 57.1% in respect of migrant households whose head had settled in Delhi within the previous ten years, and 61.9 % with regard to other slum households (Mitra and Tsujita, 2008).

Since the incidence of poverty identified in Delhi slum surveys increased over the period for which data are available, it may be assumed that the situation has continued to deteriorate. Indeed, due to a lack of research, urban poverty has in all likelihood been underestimated. Thus, further research is necessary in urban areas, particularly in respect of the lower echelons of the economy such those manifest in the slum.

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[19] In the census, a slum is defined as a compact settlement with a collection of poorly built shelters, mostly of a temporary nature, crowded together, usually with inadequate sanitary and drinking water facilities, and set in unhygienic conditions. The nature of the slum is discussed in detail in Chapter 4.

[20] See Chapter 4 for a definition of the notified slum.

3.3. Employment Pattern as the Principal Determinant of Monetary Poverty

Urban poverty can be distinguished from rural poverty in terms of various forms of vulnerability, such as those associated with the labour market, ownership of land and housing, socioeconomic strata, and the environment (Wratten, 1995; Moser, 1998; Government of India, 2002). In particular, with the recent rise in the informalisation of employment, the labour market is increasingly regarded as a significant determinant of urban poverty in developing economies (Gong et al., 2004; Herrera and Roubaud, 2005; Government of India, 2008). By the same token, in spite of high economic growth and an accelerated shift towards services and industry in terms of value added to the Indian economy, more than 90% of the workforce is still employed in the informal sector (or 'unorganised' sector in local terminology),[21] even though it is estimated that this part of the economy accounts for half of India's GDP (Government of India, 2008).

In the main, employees in the unorganised sector are engaged not in the production of goods and services under global competition, but in low productivity occupations, often in small enterprises or production units that are generally characterised by lack of secure contracts, workers' benefits, or social protection (ibid). What is worse, any increase of employment in the formal sector ('organised' sector in local terminology) has been informal in nature, without job or social security such as a pension (ibid). Indeed, only a minority of the workforce enjoys social security benefits or regular contracts in the organised sector (IAMR, 2009). However, the headcount poverty ratio amongst organised sector workers (11.3%) is much lower than that of their counterparts in the unorganised sector (20.5%) (Government of India, 2008). The poverty rate in workers without regular contracts or job security in the organised sector is similar to that of those in the unorganised sector (ibid).

There is also a striking difference in degree of poverty with regard to different employment categories. Population distribution by employment status in urban areas in

[21] The unorganised sector refers to all unincorporated private enterprises owned by individuals or households engaged in the sale and production of goods and services operated on a proprietary or partnership basis, and employing fewer than ten workers in total. Employment in the unorganised sector is frequently calculated as the product of the total number of those in work minus the number of workers employed in the organised sector (Government of India, 2008, p.2).

2009/10 was 38.5% for regular waged/salaried employees, 14.2% for casual labourers, and 40.6% for the self-employed (Government of India, 2013b). Headcount poverty ratios were highest amongst casual workers, both in the organised and unorganised sectors; while regular workers were less likely to fall below the poverty line (Government of India, 2008). Furthermore, given that the percentage of regular waged workers has declined over the years, the employment situation might have deteriorated yet more markedly.

Poverty is often related to the nature of employment, and the high rate of unorganised sector occupations among the poor has frequently been linked to lower education levels (e.g. Sundram and Tendulkar, 2003a; 2003b). Indeed, there is a remarkable difference in average years of schooling between workers in the organised sector (9.0 years) and the unorganised sector (5.6 years) (Government of India, 2008). It was also found that the literacy rate of casual labours and the self-employed was 65.5% and 82.5% respectively in urban areas, whereas 89.1% of regular waged/salaried workers were literate as of 2009/10 (Government of India, 2013b). It therefore seems that there is a significant link between low education levels, informal employment, and income/expenditure poverty.

Moreover, in urban areas, unorganised sector employment, poverty, and slum residence often seem to converge (Mitra, 1994). In industrial cities, workers in the organised sector may live in slums due to shortages of space and housing. However, this is more likely to be the case with regard to workers in the unorganised sector who subsist on extremely low incomes; a factor that is linked to the higher poverty rates in slum households.

There also seems to be a gender difference in terms of education and labour market outcomes. For example, female education in India tends to have a U-shaped correlation with engagement in waged work: illiterate women tend to go to work, but as education levels increase, they are less likely to do so; yet, when education levels rise still further, the likelihood of engagement in the labour market increases again (Mathur, 1994; Kingdon and Unni, 2001). However, in some cases, there may be a negative correlation between female education and waged work (Duraisamy, 1988), since girls are often

educated or trained in preparation for better marriage prospects rather than better employment opportunities. Moreover, in adopting upper-caste norms regarding the behaviour of women, they may withdraw from the labour market altogether (Chen and Drèze, 2005). If they do go out to work, in the absence of any better alternative, less educated women are more likely to be employed in typically easily available jobs in the unorganised sector. This is attributable to limited mobility due to household responsibilities, including child rearing, or the cultural discouragement of commuting alone over long distances (Mitra, 2003).

It has been suggested that caste segregation persists in the labour market. Indeed, empirical evidence suggests that SC/STs still lag behind other castes in terms of income (Deshpande, 2001; Borooah, 2005; Kijima, 2006a; Thorat and Dubey, 2012); entry into the labour market (Banerjee and Knight, 1985; Mohanty, 2006; Madheswaran and Attenwell, 2007); and intergenerational economic upward mobility (Motiram and Singh, 2012). Todaro (1969) theoretically posits a two-stage process of entrance to the urban labour market whereby migrants initially access the informal sector and progress to the formal labour market as they acquire skills. However, such a shift tends not to easily occur in some developing countries, including India. Moreover, migrants are not necessarily engaged in the informal service sector or lower strata of economic activities (e.g. Banerjee, 1986; Papola, 1986). Thus, specific contexts determined by difference in gender, social position, and migration status should be taken into account.

3.4. Education in India

3.4.1. Overview of Educational Attainment and Challenges

The education level in India remains relatively low. The literacy rate of adults aged 15 and above from 2005 to 2010 is estimated to have been 63.0%, which is much lower than other emerging economies such as China (94%), Russia (100%) and Brazil (90%) (UNESCO, 2012).[22] The adult literacy rate in Delhi (86.2%) was higher than that of India as a whole (74.0%) in the 2011 Census of India (Government of India, 2011a; Joshi, 2011). However, the literacy rate in slum areas (65.5%) is much lower than that of Delhi as a whole (86.2%). Educational opportunities and attainment in respect of

[22] However, these figures may be overestimated.

urban slum dwellers thus seem to be markedly inferior in comparison to more affluent sections of the population.

Government policy in independent India initially tended to emphasise higher education rather than the primary or secondary sectors; partly because the demand for tertiary education was quite high among the elite population at the time of independence (Kumar, 1998) and partly because the initial import-substitution industrial policy that underscored the importance of heavy industry necessitated the engagement of a substantial number of graduates in the natural sciences.

The 1950 Indian Constitution stipulates free compulsory education for children aged 6 to 14 years but implementation depends upon each state government (Drèze and Sen, 1995), which has led to huge disparities in school attendance in different areas of the country.[23] Indeed, the lack of education coverage, particularly in the Hindi-speaking northern states, may be attributed to insufficient government commitment (Basu, 1995; Drèze and Sen, 1995); low budgets (Tan and Mingat, 1992; Drèze and Sen, 1995); restricted use of fiscal transfer from central government (Tsujita, 2005); and the general public's weak monitoring of education, and indifference to education in general and elementary education in particular (Drèze and Gazedar, 1998).[24]

Nevertheless, embracement of the international call for 'education for all' (EFA) has intensified since the 1990s, due in part to the World Conference on Education in 1990 and the implementation the following year of the policy of 'Adjustment with a Human Face' under economic liberalisation (Tsujita, 2005). For example, external aid – World

[23] The Constitution stipulates that accountability for education is shared by both central and state governments. However, each state has de facto responsibility for service delivery, which principally involves (1) the enactment of education legislation; (2) the implementation of national programmes; (3) the implementation of state-specific education policies and programmes; (4) the recruitment, training and deployment of teachers; (5) the development or selection, sale, and distribution of textbooks; and (6) the recognition, inspection and curricula of private schools.

[24] Until the constitutional amendment of 1976, each state government took full responsibility for primary education. Even today, each state has a different education system, elements of which include determination of school entrance age; number of years devoted to upper and lower primary school (although standardised to a total of ten years for all states); number of school days per year; and the examination system.

Bank loans to elementary education in particular – significantly increased in the 1990s (Govinda, 2002), and continued at least to the end of 2000s. In addition, decentralisation and community participation in education were promoted in the 73rd and 74th amendments to the Constitution in the early 1990s (Govinda and Diwan, 2003), and the provision of 'basic' education became an election plank in the late 1990s. Furthermore, social activism and the influence of the Convention on the Rights of the Child had paved the way for education as a fundamental right for those aged 6 to 14 years by the 86th constitutional amendment of 2002 (Little, 2010 ; Juneja, 2012).

The enactment of the Right of Children to Free and Compulsory Education Act, 2009 might also facilitate further access, given that EFA remains an unaccomplished goal with approximately 14% of children aged 6 to 14 years remaining out of school (Government of India, 2010a). This act is the first ever piece of Indian national level legislation that entitles all children aged 6 to 14 years to fee-free education.

Overall, a recent and broad range of accelerated effort – including constitutional, legal, financial and political commitment to achieve the universalisation of elementary education – shows that attendance rates with regard to children aged 6 to 14 years have significantly improved in rural areas (62.6% in 1992/93 to 77.5% in 2005/06); and in respect of girls in particular (52.2% in 1992/93 to 73.4% in 2005/06) (IIPS, 1995; 2007). Moreover, it is clear from this data source that the rural–urban disparity in school attendance has also progressively narrowed.

However, these favourable statistics mask the fact that attendance rates in urban areas have stagnated, especially with regard to boys, standing at 85.3% in 1992/93 and 85.4% in 2005/06 (ibid). In Delhi, the overall attendance rate declined marginally from 86.9% in 1992/93 to 86.8% in 2005/06 (ibid.). Attendance in other urban areas has similarly stagnated or even deteriorated in a large number of states in spite of the urban bias in the provision of infrastructure and service delivery that is frequently highlighted in the literature (e.g. UNESCO, 2010).

At the same time, it has become increasingly clear since the 1980s that a de facto

privatisation of education reflected in the growing number of independent schools has gained prominence in many states, including those recognised as being educationally underdeveloped (Tooley and Dixon, 2006). As the quality of government education provision has tended to deteriorate over the years, middle- and upper-class households have turned to private schools for their children's education (Kumar, 2008). Accordingly, it is estimated from the 2007/08 NSS that in urban areas, large numbers of primary and middle school pupils attend either aided (19.2%) or unaided private institutions (38.5%).[25] In Delhi, the corresponding figures are lower than those for other urban areas of the country: 8.0% for private aided schools and 27.1% for private unaided schools.

Such an emerging picture of elementary education in urban India implies that the rate of access and quality of education available to disadvantaged populations are much lower than is the case for the affluent, and that this gulf has in all likelihood widened in recent years.

3.4.2. Government Programmes

The provision of a wide range of government poverty alleviation programmes for the urban poor – including initiatives aimed at securing food, employment, housing, and microfinance enterprises – has been introduced in India (Government of India, 2009b). Although such interventions do not target slum dwellers per se, they are often aimed at households subsisting below certain per capita annual income and monthly expenditure levels (ibid). Nevertheless, it seems that only the National Slum Development Programme aims to upgrade basic infrastructure in slum areas.[26]

Similarly, slums dwellers are not usually the main beneficiaries of education programmes. However, the state's initiative *Sarva Shiksha Abhiyan* (SSA: Indian

[25] Indian private schools may be divided into aided and unaided institutions. The former are privately managed but a regular maintenance grant, mainly for teachers' salaries, is provided by the state government; while the latter are managed and financed solely by private governors. Unaided schools are further classified into recognised and unrecognised institutions, although all private schools are expected to be subject to the recognition, direction and inspection of the state government.

[26] http://mhupa.gov.in/programs/upa/nsdp/nsdparc.htm (accessed on 30 August 2012).

version of EFA), which has been implemented since 2000/01, does aim to universalise elementary education in India and specifically identifies children from deprived urban households as one of four target groups including girls, SCs and STs, and children with special needs.[27] Yet, it seems that it is not always easy to keep SSA's target urban deprived children – including street children, child labourers, domestic workers, and those with parents engaged in professions that make the education of their offspring problematic – in school.[28] Indeed, it is frequently difficult to even identify these children since they are not widely visible.

Additionally, the National Literacy Mission targets the most productive and reproductive age group of 15 to 35 years, which it has enlarged to include those in the age group 9 to 14 years excluded from both formal and non-formal schooling.[29] The promotion of female literacy in particular is perceived to contribute to women's empowerment in terms of health, economic and other aspects of wellbeing.

In Delhi, the formal education sector boasts that its various incentive programmes constitute a policy directive. According to the Government of Delhi, such initiatives include the free supply of textbooks, uniforms, shoes, financial assistance in the purchase of stationery, the provision of various scholarships, a mid-day meal, lodging, and non-formal education[30] (see Appendix 1). As discussed in Chapter 2, the provision of basic education for the urban disadvantaged has been initiated by various NGOs (Chakravarty, 2002). Thus, a range of basic learning opportunities is at least theoretically available for such deprived children and adults resident in slum areas.

3.5. Locating the Analysis of Education and Poverty within the Macroeconomic Context

The Indian economy has enjoyed rapid economic growth in recent years, with average annual growth rates in terms of net national income of 7.5% from 2002/03 to 2006/07,

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[27] http://ssa.nic.in/ (accessed on 11 October 2009).
[28] http://ssa.nic.in/ (accessed on 11 October 2009).
[29] http://www.nlm.nic.in/ (accessed on 20 October, 2006).
[30] http://delhiplanning.nic.in/Reports/plan%20Schemes.pdf) (accessed on 11 October 2009).

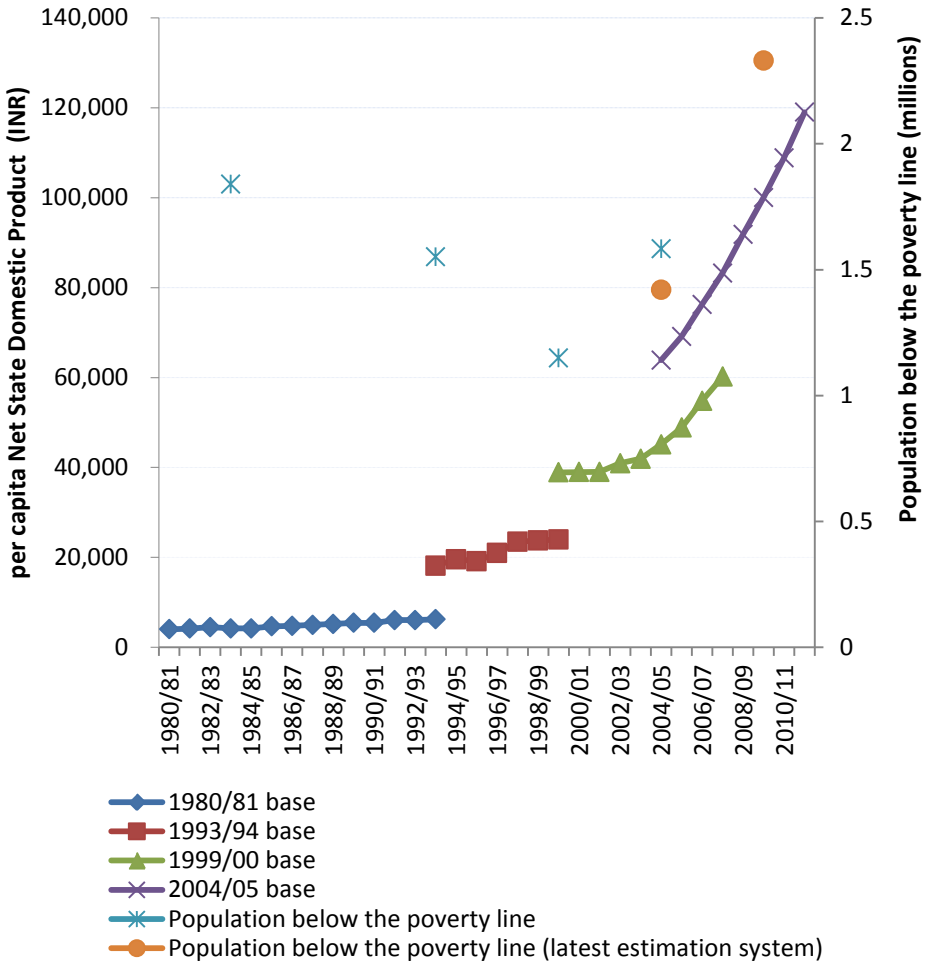
and 7.8% from 2007/08 to 2011/12 (Government of India, 2013a).[31] This should be compared to the low growth rate during the previous planning period, which ran to 1991. For example, average annual growth rates in terms of net national income were 2.6% in the early 1960s and 4.9% in the late 1970s (Government of India, 2013a). A series of deregulatory policies – beginning in the mid-1980s and reaching their final form in 1991 – shifted the course of the Indian economy from a lower to a higher growth trajectory. At the national level, higher economic growth has translated in to higher per capita income growth.

However, it has also been shown that the extent of poverty reduction in the 1990s and subsequent years slowed down in comparison to that of the 1980s (Dev and Ravi, 2007; Himanshu, 2007). Moreover, India has the largest population of poor people in the world and, to make matters worse, the number of urban poor has increased in recent years (Government of India, 2009a; 2009b). In Delhi, per capita income has increased as the city attracts considerable investment in infrastructure and enterprise; however the size of the population that subsists below the poverty line also increased in recent years (see Figure 3-1).

Indeed, it is widely acknowledged that the chasm between the haves and the have-nots has widened. Empirical studies on economic inequality in India show that disparities in terms of individuals and caste/religion groups have increased, particularly since the 1990s (Weisskopf, 2011). The tension between growth and inclusion is further exacerbated by a recent trend whereby the haves are able to access a better quality of privately supplied infrastructure and services, while the have-nots may have no such recourse, or only have access to an inferior quality of public or even informal infrastructure and services – including education.

[31] The Indian fiscal year begins on 1st April and ends on 31st March. It should thus be noted that the figure for 2007/08 to 2011/12 is an estimate.

Figure 3-1 Trends in per capita income and population below the poverty line in Delhi



Notes: Per capita NSDP is a proxy for per capita income. Calculations utilise constant prices. Due to changes in terms of the NSDP base year, two different figures are shown for 1993/94, 1999/2000, and 2004/05. The 1999/2000 figure is incompatible with previous figures due to methodological differences. The two figures with regard to population below the poverty line for 2004/05 (1.6 million and 2.3 million) are reached by different methods of calculation. The most recent estimate (2009/10) calculated by the so-called Tendulkar Committee also employs a different system from that used for the previously estimated and re-estimated 2004/05 figures.
Source: Government of India (2012); Reserve Bank of India (2012).

Moreover, recent high economic growth has failed to generate sufficient employment opportunities in the organised sector, a situation often referred to as 'jobless growth' (Government of India, 2008). Much empirical analysis has concluded that the high economic growth of recent years is associated with a decline in the creation of employment opportunities and a fall in average earnings (ibid.). The consequent informalisation of employment has in all likelihood further increased the number of poor households and worsened adult members' and/or their children's access to

education.

Furthermore, sluggish growth in the organised sector and the informalisation of the economy has potentially heightened the tension between education and labour market outcomes (Harriss-White, 2003). Education opportunities and access to employment are still relatively limited for slum dwellers; it is thus understandable that they have little opportunity for direct involvement in globally competitive industries and services. Worse still, informal sector workers, with whom slum dwellers often overlap, are less likely to have access to vocational training than formal sector workers (Tueros, 1995).

3.6. Conclusion

This chapter has shown that urban poverty in India is a serious issue, especially given that it has so far not been significantly reduced even under higher economic growth, which has failed to generate sufficient employment opportunities, particularly in the formal sector. Additionally, urban poverty is often linked to the labour market, limited access to which is in turn associated with underachievement at school. Ultimately, poverty, a low level of education, and informal employment are closely related to slum residence.

Under the goal of EFA, government education policy seeks to expand schooling opportunities for the poor, and access in India as a whole has increased. However, enrolment has stagnated or even declined in urban areas, including Delhi. Accordingly, this chapter has argued that in such areas, the poor – including slum children – are less likely to have access to education than the relatively affluent.

In this context, it is assumed that adult slum dwellers tend to be comparatively less highly educated and engaged in informal employment with a lower income, and are thus more likely to be poor. Consequently, their children are less likely to be sent to school or even if they are, the quality of education is not as high as that received by the children of the affluent; given that the correlation between a household's economic wealth and the school it sends its children to have become increasingly clear. Therefore, slum children may not receive an education that is able to bring adequate returns for future

wellbeing.

At the same time, as the existing literature reviewed in Chapter 2 suggests that access to schooling differs in terms of caste, religion, gender and migration status, there is in all probability a parallel disparity between slum dwellers with regard to entry into the urban labour market and resultant earnings. It is therefore necessary to analyse the linkage between education and poverty and that between poverty and child schooling by taking these variables into account.

Against such a background, the relationship between education and poverty at individual and household levels, and the influence of deprivation on child schooling aimed at breaking the vicious circle of poverty among slum dwellers is investigated in this thesis. The next chapter discusses the research methodology and methods employed to examine education–poverty and poverty–education linkages.

Chapter 4 Methodology and Methods

4.1. Introduction

This thesis employs mixed methods as a methodology. It thus utilises quantitative analysis to explore the relationship between education and multidimensional poverty and the access of the poor to schooling; and qualitative analysis to describe the process of becoming and reasons for being 'poor', the value of education as perceived by slum dwellers, and the root causes behind the inadequacy or absence of education in a slum context.

Mixed methods research has gained prominence of late and is now recognised as a third paradigm in addition to purely qualitative or quantitative approaches (Johnson and Onwuegbuzie, 2004; Teddlie and Tashakkori, 2011). In recent years, mixed methods research has in fact become widespread in many areas of the social sciences (Greene, 2008).

The structure of the chapter is as follows. Section 4.2 delineates the research questions. Section 4.3 explains why and how the aforementioned methods are employed in the thesis. Section 4.4 discusses data collection. Section 4.5 notes some limitations of the study. Section 4.6 describes ethical issues. Section 4.7 provides a basic profile of the surveyed slums. The findings of the chapter are summarised in Section 4.8.

4.2. Research Questions

A summary of research questions are presented in Table 4-1. As a matter of principle, such questions should adopt the best analytical methodology to answer them, that is, mixed methods in this case.

Table 4-1 Summary of research questions

Question	Methodology	Unit of analysis	Concept of poverty
A. How and to what extent is education associated with poverty?			
A1. What role does education play in enhancing post-schooling lives among adult slum dwellers?			
A1-1. How and to what extent are adult slum dwellers educated, and what factors are associated with their education level?	Quantitative and qualitative	Slum dwellers aged 15 to 60	Monetary
A1-2. To what degree does education enhance earnings through employment opportunities?	Quantitative and qualitative	Slum dwellers aged 15 to 60	Monetary
A1-3. How do illiterate people value education as a means of poverty alleviation?	Qualitative	Slum dwellers aged 15 to 60	Multidimensional
A2. How and to what extent is education associated with multidimensional poverty at household level?			
A2-1. How poor are slum households, and how is poverty distributed across households?	Quantitative and qualitative	Slum household	Multidimensional
A2-2. How and to what extent does education participation predict poverty level?	Quantitative and qualitative	Slum household	Multidimensional
B. How and to what extent is poverty associated with child schooling?			
B1. What factors combine with poverty to prevent slum children from gaining access to schooling?	Quantitative and qualitative	Slum children aged 5 to 14	Mainly monetary
B2. What are the costs of schooling, and how do they influence participation?	Quantitative and qualitative	Slum children aged 5 to 14	Mainly monetary
B3. Is the quality of schooling that slum children have access to sufficiently adequate to enable them to escape from poverty in the future?	Quantitative and qualitative	Slum children aged 5 to 14	Mainly monetary

Source: The author.

4.3. Mixed Methods

The mixed methods approach has been defined in many different ways; however, there is broad consensus that it constitutes a synthesis of qualitative and quantitative techniques. Based on their review of a large number of studies, Johnson et al. (2007) define mixed methods as follows:

> Mixed methods research is the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g. use of qualitative and quantitative view points, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration (pp.123).

Creswell and Clark (2011) concur in that mixed methods determine not only means of data collection but also imply a methodology that extends from viewpoints to inferences, but do not specifically refer to methodological stance. Indeed, there are critical arguments against the mixed methods approach, particularly in respect of this very combination of methodologies. Historically, the most common objection is that

quantitative and qualitative methodologies represent fundamentally different epistemological and ontological stances, and thus cannot be readily combined in a single study (e.g. Smith, 1983; Howe, 1988; Denzin, 2012).[32]

On the one hand, quantitative research is primarily designed to develop universally applicable and replicable laws regardless of time and place, through the use of positivist concepts and scientific models in particular (Smith, 1983; Bryman, 2008). Social and human reality exists independently of the researcher's consciousness and prior to any interest or activity in respect of the subject under study (Smith, 1983). Therefore, if the world is to be observed free from the investigator's own personal disposition, location, or particular situation, it must be approached in an undistorted manner in which the processes and results of investigation are unbiased (ibid). A series of established procedures has been adopted to prevent researchers from disrupting or distorting reality. Accordingly, quantitative research entails a deductive approach to establish the relationship between theory and the actuality under study in which the emphasis is placed on the testing of the former (Bryman, 2008).

On the other hand, qualitative research is in principle geared more towards understanding the complexity of the social world through examination and interpretation of phenomena by a researcher operating in a natural setting (Smith, 1983; Patton, 2002; Bryman, 2008; Denzin and Lincoln, 2011). In this approach, understanding the world is a process that is socially and historically constructed, and reality is constituted through the activities of the human mind. In other words, social interests, values, dispositions, and so on shape the way in which the researcher conducts their study, and reality is determined through the dynamic and intimate relationship between researcher and subject (ibid). This means that facts and values often merge and become inseparable: in qualitative research, truth is context-specific, and socially and historically conditioned and matched at any particular time or place (Smith, 1983). An inductive approach to the description of the relationship between theory and study is thus adopted with emphasis on the generalisability of the former (Bryman, 2008).

[32] For a critique of the mixed methods approach in terms of other than epistemological differences, see, for example, Teddlie and Tashakkori (2011).

The debate on the philosophical stance of a mixed methods approach has gradually evolved from emphasis on such a third paradigm as an interrelated set of philosophical assumptions, to the legitimising of a more practical means of data collection and analysis that underlines individual aspects of philosophy and theory as guiding research principles (Teddlie and Tashakkori, 2011, p.13).[33] Thus, the importance of a purely philosophical stance is no longer stressed. For example, Greene (2007) contends that a mixed methods approach is defined by design alternatives that consist of various methods arranged in various sequences according to various priorities; and, significantly, discussion of such alternatives has probably contributed to a better understanding of the mixture of multiple dimensions in social inquiry models.

Morgan (2007) advocates a pragmatic approach that "connects issues at the abstract level of epistemology and the mechanical level of actual methods" (p.68) as a new guideline for social science research methodology, both as a basis for supporting studies that combine qualitative and quantitative approaches, and as a way of redirecting attention to methodological concerns.

It is emphasised that in practice, each study should ascertain its own stance on the combination of paradigms appropriate to the mixture of methods it employs. In this regard, Teddlie and Tashakkori (2010) hold that there are six conceptual stances in mixed methods research:

(1) an aparadigmatic stance in which models and conceptual positions are less important in practice than limiting methods according to a particular philosophical stance; (2) a substantive theory stance that takes the position that theoretical orientation is more important than philosophical paradigms; (3) a complementary strength stance in which different methods must be kept as separate as possible in order to realise the strength of each paradigmatic position; (4) a consideration of multiple paradigms stance in which

[33] Bryman (2008) argues that the fact that feminist researchers who had traditionally resisted quantitative methods 'softened' research approaches is another reason why mixed methods have become more common.

the best option is decided by the mixed methods design; (5) a dialectic stance that assumes that all paradigms have something to offer and the use of multiple paradigms in a single study contributes to greater understanding of the phenomenon or phenomena under investigation – a paradigm that involves "consideration of opposing viewpoints and interaction with the tensions caused by their juxtaposition" (Teddlie and Tashakkori, 2010 p.15) – and (6) a single paradigm stance that selects the best model for influencing practical decisions.

The present thesis takes the first stance: an aparadigmatic approach in which models can be mixed and matched in various combinations. Green (2007) finds that much of mixed methods research is implemented with frameworks designed around either the aparadigmatic or purist stance. Additionally, Patton (2002) argues that, although the importance of how and what kind of reality exists should not be underplayed, "In real-world practice, methods can be separated from the epistemology out of which they have emerged" (p.136). Thus, an aparadigmatic stance places more emphasis on the practical characteristics and demands of the inquiry context, and the problems under consideration such as the purpose of the study, research questions, and characteristics of samples. Accordingly, an aparadigmatic stance enables the research questions to be addressed by generalising the correlation between education and poverty and versa through quantitative methodology; and describing the process of and reasons for such relationships through qualitative methodology.

Axinn and Pearce (2006) stress the complementarity of mixed methods research:

> Varying the data collection approach can (1) provide information from one approach that was not identified in an alternative approach; (2) reduce non-sampling error by providing redundant information from multiple sources; and (3) ensure that a potential bias coming from one particular approach is not replicated in alternative approaches (p.1).

Jonson and Onwuegbuzie (2004) also highlight the strengths of the mixed methods approach, including the fact that it is able to address a broader and more comprehensive range of research questions because the study is not confined to a single method or technique; meaning that it is more likely to produce the depth of understanding

necessary to inform theory and practice.

In short, mixed methods enable researchers to offset the disadvantages of each approach with the advantages of the other (Axinn and Pearce, 2006). The strength of the quantitative approach lies in the generalisability of the characteristics of (in most cases) large populations, which can be tested by checking validity and reliability. Its weakness lies in an inability to contextualise the overall research setting, describe the process of transformation from input to output variables, or the reasons why such a process takes place (Bryman, 2008). The qualitative approach has the advantage of shedding light on in-depth, detailed, and longer-term perspectives and processes; although it has the disadvantage of being unable to facilitate reliable extrapolation from its small sample base (ibid.).

Although firm objections to mixed methods research still obtain, there is a growing body of literature on studies utilising such an approach (Greene, 2008), and researchers have convincingly demonstrated that it is possible to use this technique successfully (Denzin and Lincoln, 2011). In recent years, the use of mixed methods has been recommended particularly for data analysis in relation to development- and poverty-related studies (e.g.; Pradhan and Ravallion, 2000; Kanbur, 2002; Hulme and Toye, 2006; Kanbur and Shaffer, 2007; Davis and Baulch, 2011).

However, qualitative research has often only been used to triangulate the findings of quantitative data. Moreover, research on poverty has still generally failed to explain the structural and relational factors that give rise to deprivation. Since poverty is not only a state but also a process that reflects how society as a whole operates, a qualitative approach (e.g. Hulme, 2004 ; Davis, 2006) may provide crucial insights into its causes.

There are several different ways of combining quantitative and qualitative research in a particular context. Specifically, the present study modified mixed methods principally in relation to what Creswell and Clark (2011) term ‘embedded design’. Here, both quantitative and qualitative data within a traditional quantitative framework are collected and analysed. Such a paradigm allows researchers to “add a qualitative strand

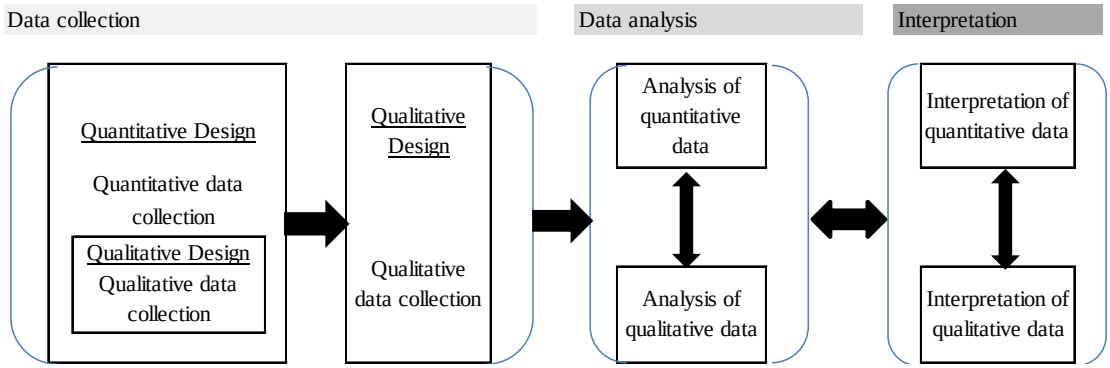
within a quantitative design" (ibid. p.71). In this thesis, priority is given to quantitative data collection mainly through structured questionnaires.

As Figure 4-1 shows, qualitative data collection was carried out both during and after the quantitative survey, some questionnaire items requiring open answers within a structured rubric. Additionally, further qualitative data collection through focus group discussions, and semi-structured interviews with non-governmental organisations (NGOs) and researchers was conducted after initial data collection. Qualitative data were used not only to triangulate quantitative results of the analysis, but also to answer certain research sub-questions, including how poor people valued education and why slum dwellers returned specific answers. The thesis addresses such questions solely qualitatively in an attempt to understand individual experiences of deprivation.

Such a method was employed on the understanding that poverty is an individual experience within a specific context, rather than a collective national or regional occurrence (Hulme, 2004), and because the subjective assessment of wellbeing is presumably constructed in relation to other people. Nevertheless, it is also assumed that there may be major events or shocks at regional, as well as household and individual levels (such as rioting, natural disaster, the sickness or death of a family member, marriage, and so forth) that either directly or indirectly lead to a downward slide into poverty in both objective and subjective terms. Thus, the use of qualitative analysis facilitates insight into the applicability of any potential poverty reduction process that cannot be examined by merely considering input and output variables in statistical analysis.

Finally, analysis and interpretation are conducted simultaneously in respect of both quantitative and qualitative data. In this process, analysis and interpretation are compared, contrasted and utilised to reinforce the argument. Crucially, this procedure is repeated throughout the entire analysis and interpretation stage.

Figure 4-1 Research design



Source: The author.

4.4. Data Collection

This section describes the process of data collection in urban slums. It commences with a discussion of various definitions of the slum, and the characteristics of Delhi slums in particular, followed by a description of the sampling technique and data collection instruments adopted by the study.

4.4.1. Definition of the Slum

The slum has been defined in various ways. In India, the Slum Areas (Improvement and Clearance) Act, 1956 defines the slum area on the basis of its being unfit for human habitation due to cramped conditions, faulty arrangement of streets, lack of ventilation, light or sanitation facilities, or any combination of these factors – which are regarded as determining safety, health and morals (sic). This law has been implemented in Delhi and other cities, but the term 'slum' is defined in a slightly different way in the legislation obtaining in each state or urban local government (Mitra, 2003, pp.28–32).

Similarly, government surveys have defined the slum in different ways. With the 2001 Census of India, for the first time, an attempt was made to establish accurate data on urban slums that had had populations in excess of 50,000 in the previous census of 1991 (Government of India, 2005), and the subsequent census of 2011 sought to extend all statutory towns irrespective of size (Government of India, 2013c). According to the census, a slum meets one or more of the following criteria: (1) any area designated as such by the state government under any act, including the Slum Areas (Improvement and Clearance) Act, 1956; (2) any area recognised as such by the state that may have not

have been formally identified as a slum under any act; or (3) a compact area with a population of at least 300, or about 60 to 70 households, of poorly built, congested tenements located in an unhygienic environment, usually with inadequate infrastructure and lacking in proper sanitary and/or drinking water facilities (Government of India, 2005, p.2; 2013c). The draft National Slum Policy (2001) which has not yet been ratified, adopts the aforementioned criteria.[34]

The National Sample Survey (NSS) constitutes another major project that has undertaken investigations on the condition of slums four times since the 1970s (Government of India, 2010b). The last two, which were conducted in 2002 and 2008/09 respectively, define the slum as a cluster of at least 20 households located in a compact settlement in poorly built tenements – mostly of a temporary nature – characterised by overcrowding, unhygienic conditions, and inadequate sanitary and drinking water facilities (Government of India, 2003, p.6; 2010b, p.7).

It is thus clear that there is a slight discrepancy in the way the slum is defined by local authorities and different surveys. However, there is general unanimity on the notion that slums are socially, economically and environmentally unfit places for human habitation.

4.4.2. Characteristics of Delhi Slums

The 2011 census showed that the Delhi slum population was approximately 1.8 million, or about 10.6% of the total population of the city, which was second only to that of Greater Mumbai slums. However, the literacy rate in Delhi slum areas (65.5%) was far lower than that of their Mumbai counterparts (78.0%); and the Scheduled Caste (SC) section of the population of Delhi residing in slums (27.1%) was much larger than that in respect of Greater Mumbai (9.2%).[35]

There has been a sharp increase in the number of people moving to Delhi since the 1990s, almost 70% of the 2.2 million new in-migrants coming from the former states of

[34] See, for example, Batra (2009), *Indian Express* (8 March 2000), and *People's Democracy* (16 October 2005).
[35] http://www.censusindia.gov.in/2011census/population_enumeration.aspx

Uttar Pradesh and Bihar (Government of Delhi, 2006; 2009)[36] – two of the most economically and educationally underdeveloped regions of India.[37] Accordingly, in short, Delhi slum dwellers can be characterised as a concentrated population of the lower socio-economic strata of society.

However, the 2008/09 NSS (Government of India, 2010b) shows that notified Delhi slums are by and large better resourced than the national average for both notified and non-notified slums in terms of the availability of basic infrastructure – including drinking water; electricity provision for street lighting and domestic use; latrines; underground sewage pipes; the refuse disposal system; government schools; and medical facilities. For example, the proportion of slums in which the nearest government primary school is located within 0.5 km is 72.8% in Delhi notified slums in comparison to 52.9% at the national level. The only exception to this trend is that the percentage of paved approach roads is slightly less in Delhi notified slums (63.3%) than the national average (65.4%) (ibid).

Yet, the history of change in the provision of basic infrastructure to Delhi notified slums presented a mixed picture in the 2000s. Access to various facilities in the main declined from 2002 to 2008/09, a deterioration that can be attributed to the administrative policy to withhold basic services from slum areas so that they could be more easily demolished and the land bulldozed in accordance with the vision to raise the city to international standards without the need to apply the slum 'master plan' discussed below.

Since the 1990s, the master plan for Delhi has adopted the following three-fold policy towards squatter settlements, including slums: (1) relocation from areas required for public purposes; (2) in-situ development at other sites to be selected on the basis of specific parameters; and (3) environmental upgrade to basic minimum standards as an interim measure. Work on remaining areas in need of development is to be postponed

[36] In 2000, Uttar Pradesh and Bihar were each divided into two new states.

[37] This trend has further intensified in recent years. Thus, 56.7% of migrants – defined as having relocated to Delhi in the previous 20 years – were identified as originating from Uttar Pradesh or Bihar in 2001; a figure that had increased to 77.2% in 2013 (Government of Delhi, 2013).

until it can be covered by either of the first two components of the policy. It is reported that some slums have been demolished since 2000 for a variety of reasons – including the construction of a park on the banks of the Yamuna River, and the development of infrastructure for the Commonwealth Games of 2010 – but anecdotal evidence suggests that slum dwellers have not always been relocated to a resettlement neighbourhood.

It has been noted that up to date statistics on slums are difficult to obtain (Dupont, 2008). Historical data on slum households also vary markedly between different departments of the Municipal Corporation of Delhi (MCD). For example, according to a door-to-door survey conducted by the Food and Supplies Department in 1990, the slum population was approximately 1.2 million (Government of Delhi, 2009b). While the Delhi Urban Environment and Infrastructure Improvement Project found the combined population of the city's slum clusters to be about 4.7 million in 2000 (Government of Delhi, 2009), the Delhi Urban Shelter Improvement Board cited it as 2.0 million in 2010 (Government of Delhi, 2013).Yet, the census reported that the slum population of the city was 1.9 million in 2001 and 1.8 million in 2011, respectively.

The following sampling framework was designed based on a list compiled by the Slum Wing, Municipal Corporation of Delhi accessed in October 2007. [38]

4.4.3. Sampling Technique

In order to obtain a representative sample for extrapolation to all slum areas of Delhi, with the assistance of two investigators, I conducted a household survey from November 2007 to March 2008 (at which time, I was affiliated to the Institute of Economic Growth, Delhi). According to the *Jhuggi Jhompadi* (rudimentary dwellings) list prepared by the MCD (undated), there were 1,089 notified slum clusters and 481,870 households.

The minimum sample size was determined as 400 households, which, based on the citywide total of 481,870 households, gave a 95% confidence level and a confidence

[38] This list covers the whole city, including areas governed by New Delhi Municipal Council and Delhi Cantonment Board.

interval of 4.9. Taking time and financial resources into account, I decided to investigate 417 households located in a total of 50 slum clusters. Households were selected based on a three-stage stratified random sampling technique that complied with the following criteria:

1. In the first stage, a list including slum clusters of 200 or more households distributed across the nine revenue districts of Delhi was considered. Since the sample was confined to a total of 50 slum clusters, the ratio of the number of clusters in each district to the city total was used as a weight in deciding how many were to be selected from each district. Once the number of clusters to be selected from a particular district was estimated, specific clusters were randomly selected.
2. In the second stage, the ratio of the number of households in each of the sample slum clusters to the total number of households in the 50 clusters was used as a weight in the distribution of 417 sample households across the city.
3. In the final stage, we interviewed the slum chief (*pradhan*) or informal leader of each selected cluster on the various socio-economic aspects of the community and its members, and selected a random list of specific households to complete a pre-tested questionnaire before participating in detailed interviews.
4. In order to deepen insight into major survey and interview findings, focus group discussions in non-surveyed slums were conducted in November 2008. Consultation with NGOs and researchers working in deprived districts followed during my occasional subsequent visit to Delhi.

4.4.4. Data Collection Instruments

Both community and household surveys were principally conducted using questionnaires. After I had randomly selected each slum, my assistant investigators and I roamed around the entire area for at least a day seeking to determine the exact perimeter of the slum, which was an challenging task because such administrative boundaries are often not easily located, particularly in respect of slums that are adjacent to a resettlement or unauthorised colony. Next, we interviewed an official or informal leader of each slum cluster on socio-economic aspects of the community (see Appendix 2 for a sample questionnaire). We always tried to double check responses with other

leaders or caretakers, thus building as reliable a picture as possible of each community.

The household survey was conducted through a questionnaire that included items on household roster, education, health and nutrition, subjective assessment of living standard, economic activities, living conditions, and so on (see Appendix 3 for a sample questionnaire). Some questions necessitated descriptive answers, meaning that extensive conversations were occasionally held.

The follow-up survey was conducted in a previously unvisited slum cluster, mainly in order to confirm some initial observations from the household survey, particularly on out-of-school children. With the help of an NGO that worked in slums, two different focus groups – one Hindu and one Muslim – were convened at different places and times. Only slum dwellers who had a wide range of knowledge about their slum community were invited by the NGO. Initially, I asked each group specific questions, such as the enrolment procedure for government school, reasons why children were out of school, and so on; the discussion was then gradually expanded to a wide range of issues affecting their daily lives.

It should be noted that the survey's definition of the term 'household members' constitutes those who normally eat from a common *chulha* or kitchen, as the Census of India and NSS define it. In terms of social grouping, survey participants identified their respective castes themselves, but, based on the latest Government of Delhi list, the survey formally categorised them as General (i.e. upper) caste, Other Backward Class (OBC), Scheduled Caste (SC), or Scheduled Tribe (ST).[39] According to the Constitution of India, SCs and STs are determined by the president or by each state government as socially and economically disadvantaged castes and tribes respectively. OBCs are broadly defined as socially and economically disadvantaged groups other than SCs or STs. In terms of the migrant status of individuals and households, the survey also deferred to the original government list.

[39] There is no list of STs in Delhi. However, as mentioned below, there are ST migrants to the city from other states, who are treated as such in this thesis.

In this thesis, social groups are divided into four categories: general caste, OBC, SC/ST and Muslim. Although Muslim households are also clearly subject to the various caste designations, they are treated as a discrete group and the former three categories include non-Muslim households only.

4.5. Limitations of the Thesis

It should be noted that there are some limitations to this project. Firstly, primary data were collected only once. This means that the data are cross-sectional and can thus only be used to address the correlation between education and poverty, and vice versa; while time series panel data could be employed to establish the causality of poverty alleviation through education and poverty in terms of access to education more clearly.

Secondly, this thesis only addresses three dimensions of poverty – i.e. income/expenditure, basic needs/capability, and subjective wellbeing – although the concept of deprivation can extend far beyond such parameters.[40] It should also be noted that the wide range of basic needs and capabilities is confined to some fundamental requirements. Such a reductionist approach is unavoidable if the concept of non-monetary poverty is to be analysed quantitatively and a meaningful comparison made with the notion of monetary poverty.

Thirdly, the data gathered from the slums under study are neither comprehensive nor exhaustive because the sample is limited to notified slums. Such communities tend to be stable in nature and are recognised by the governments. In fact, National Sample Surveys (NSS) of India reports that notified slums, which comprise more than 20 households, have better access to a wide range of basic facilities – including drinking water, electricity, roads, latrines, drainage, and refuse collection – than do non-notified slums (Government of India, 2003; 2010b). Owing to this, the sample used in the

[40] The criterion for such a concept of poverty is social exclusion. The main determinant of social inclusivity established by developed countries is access to employment. However, the majority of workers in developing countries suffer from lack of access to employment in the formal sector, which, nevertheless, is analysed in the relationship between education and monetary poverty at an individual level in this thesis. Moreover, when it comes to empirical research, social exclusion tends to focus on political franchise and/or access to social and economic services, which largely overlap basic needs/capabilities in this thesis. Thus, this study did not address social exclusion per se.

present study is unlikely to include short-term migrants or the poorest of the poor such as the homeless and destitute; although some respondents transpired to be beggars and those implicitly engaged in prostitution.

4.6. Ethical Issues

A number of ethical issues arose in terms of the researcher's obligation to society, research funders, colleagues, and those participating in the investigation (Scheyvens et al., 2003; UK Social Research Association, 2003; Byman, 2008). Moreover, some interrelated issues were particularly relevant to the present study. Thus, my basic stance on ethical principles and self-regulation was as follows.

Firstly, the study maintained confidentiality and anonymity in order to protect the interests of slum dwellers interviewed. Importantly, the thesis does not identify any slum resident by their real name or location: each participant in the study is assigned a pseudonym wherever their comments are quoted in order to protect personally identifiable information.

Secondly, NGO officers and researchers were consulted as part of the study but we agreed that none of their opinions, arguments or comments would be directly or indirectly quoted without at least their verbal consent. Thus, informed consent was sought in all cases. Unfortunately, I am not able to provide extracts from interviews or informal discussions with researchers or NGO staff to substantiate my arguments or provide evidence to corroborate them, although the views of these participants were invaluable to the research process.

Thirdly, quantitative and qualitative information deriving from questionnaires was carefully handled in accordance with the UK Data Protection Act 1998.[41] Neither type of data was used for any purpose other than research, and was not disclosed to any third party except when absolutely necessary, as in complying with the requirements of funding agencies, and affiliated institutions and individuals.

[41] http://www.legislation.gov.uk/ukpga/1998/29/contents

Finally, field investigators, survey interpreters, and data entry staff involved in the study were issued with signed employment contracts with me. This meant that field investigators and data entry staff in particular were required to agree to maintain the confidentiality of interviewees.

4.7. Profile of Surveyed Slums

This section provides an overview of the settlements under study that is based mainly on a survey in which I interviewed slum *pradhans* and informal leaders. Although NSS slum rounds provide an overview of infrastructure provision, the present study's sample size is much larger in terms of Delhi.[42] Moreover, this profile covers not only the quality of infrastructure but also aspects of social behaviour – including decision-making arrangements, collective action, and the activities of NGOs and political parties – that are not addressed by the NSS.

It should be noted that one large slum in the sample list was divided in two. In this particular settlement, there was a main road linking two communities, the features of which were slightly different in terms of infrastructure, socio-economic characteristics of residents, and leadership arrangements. Therefore, these neighbourhoods are treated as two separate slums. Consequently, the total number of slums amounts to 51.

Among the surveyed slums, other than four that were dominated by Muslims, populations were overwhelmingly Hindu; although not a single slum was solely populated by Hindus. Neither were there any found to consist of residents from just one place of origin – probably due to the fact that surveyed slums were relatively large in terms of number of households.

According to *pradhans* and informal leaders, the oldest slum was founded in around 1955, while the most recent was established in about 1990. Slum clusters were estimated to be 28.1 years old on average, although this does not mean that physical infrastructure has improved over the years. Table 4-2 shows the provision of basic

[42] The number of notified Delhi slums surveyed in NSS rounds in 2002 and 2008/09 was 2 and 18 respectively.

infrastructure and slum leaders' assessment of change for the better or worse over the previous five years. With two exceptions, there was a safe drinking water supply to surveyed slums, which was available in the main via public hand pump or standpipe. On average, only 22.4% of households had their own source of water, such as a tap, well or hand pump. Moreover, only 9 settlements had a permanent water supply, the average among the 49 surveyed slums that had access to safe drinking water being only 9.6 hours per day.

Table 4-2 Slum leaders' assessment of changes over five years in terms of basic infrastructure

	No. of slums with various facilities as of 2007/08	No. of slums reporting various degrees of change over the previous five years, where respective facilities were available as of 2007/08				
		Significantly improved	Improved	No change	Deteriorated	Significantly deteriorated
Safe water supply	49	14	15	11	6	3
Electricity	51	14	13	15	5	4
Internal road(s)	51	26	11	7	5	2
Street lighting	23	5	1	3	9	4
Refuse collection	41	7	12	15	5	2
Drainage	48	8	6	18	7	9
Public toilets	49	4	7	12	15	11

Notes: N=51. One slum did not report its assessment of changes in terms of street lighting.
Source: Author's survey (2007/08).

All surveyed slums were electrified, although this does not mean that all households were legally connected to the power supply. Only four slums had virtually universal legal household access, while in eight, no property was legally connected. This is an indication of how common power theft was; a situation that was partly due to the inadequate provision of electricity and partly owing to slum dwellers' inability or unwillingness to pay for what was at best an unreliable service. Nevertheless, residents pointed out that electricity meters had been installed in quite a few slums, but that no bill had ever been sent to them as of the time of the survey; thus, some slum dwellers had never paid for electricity they had albeit legally consumed.

According to the NSS (2008/09), internal paved roads constitute some of the best

infrastructure in slum areas. The study found that all internal roads were paved in 30 slums; and of all those surveyed, on average, 80.8% of internal roads were paved. However, this does not mean that they were not susceptible to flooding: even in the dry season, our mobility was sometimes impeded by roads that were waterlogged due poor drainage.

In contrast to the provision of internal roads, the NSS (2008/09) found that street lighting was one of the least available facilities. The study found that of 23 slums in which street lighting had been installed, 4 did not have any functioning lights due to lack of maintenance.

A mobile health clinic service whereby medical professionals periodically visited slums was provided either by the government or an NGO. Principal activities were the distribution of medicines and basic consultation on symptoms. Twenty-eight slums had access to such a service, although the frequency of visits varied from twice a week to once a month. However, household routines meant that slum dwellers did not generally attend mobile health clinics very much. Of 2,228 individuals in the sample, during the previous year, only 4.9% had visited a government mobile clinic while just 4 people had availed themselves of an NGO health facility. Additionally, street spraying for the prevention of vector-borne diseases such as malaria and dengue fever was implemented by the government in 37 slums, although this service was not always provided regularly either. In some slums, spraying was only carried out once a year.

The availability of education facilities in surveyed slums was limited due to space constraints. However, each slum had on average access to 2.8 and 2.6 primary and middle schools respectively; although in the vast majority of cases, the schools were located outside the cluster itself (education access is discussed in detail in Chapter 7).

The NSS (2008/09) estimates that the majority of houses in notified Delhi slums may be described as *pucca* (solid in structure). However, a closer look at accommodation in each sample slum reveals a somewhat different picture. The present study found that the proportions of *kuchcha* (houses built from temporary materials*)*, semi-*pucca*

(semi-permanent constructions with either a wall or the roof built from solid materials), and *pucca* structures were 15.7%, 35.2% and 48.9% respectively. *Kuchcha* houses remained in evidence at the peripheries of slum areas in particular because they were occasionally demolished or their residents evicted by the authorities – only for the former occupants to return or a different family to take up residence on the plot and build a new hut.

The survey asked slum *pradhans* or informal leaders to assess changes in infrastructure for better or worse over the previous five years by means of the five-point Likert scale 'significantly improved', 'improved', 'no change', 'deteriorated', and 'significantly deteriorated'. On the one hand, the most improved facility transpired to be internal roads, a finding that is corroborated by the NSS (2008/09). On the other hand, the least improved service was the provision of toilet facilities (Table 4-1).[43] Only 8.3% of sample households were found to have a latrine at home, meaning that the overwhelming majority had to pay for public facilities on a daily basis. Moreover, the rise in slum populations and behavioural change among some residents from open defecation to the use of public toilets had resulted in an acute shortage of latrines. Lack of maintenance owing to deficiencies in hygiene and safety as well as a general shortage of water had also exacerbated the problem over the years, with the result that toilet facilities had significantly deteriorated.

However, at the time of the survey, slum dwellers were found to be more concerned about obtaining proof of identification – such as voter ID or a ration card for the procurement of essential commodities – than the provision of infrastructure. This was due in part to the abrupt announcement from the Delhi government at the time of the fieldwork that random checks of proof of identification were to be introduced by the police owing to growing security concerns.[44]

[43] The NSS (2008/09) identifies drainage as the least improved facility in notified Delhi slums, although it should be noted that this survey employs the comparatively simplified three-point scale 'improved', 'no change', and 'deteriorated'.

[44] Although this policy was later withdrawn, at the time of writing, proof of identification remains a problem for slum dwellers.

Accordingly, we were frequently approached by slum dwellers to help them obtain a ration card. This was an essential item if subsidised rice, wheat, sugar or kerosene were to be purchased from a fair-price shop through the public distribution system (PDS). It has often been argued that the PDS functions ineffectually (Dev et al., 2003), yet it was found to play an important role in ensuring the availability of commodities for slum dwellers. In fact, a high Engel's coefficient[45] obtained widely amongst slum households, even when staple foods and kerosene were available at lower prices through the PDS (see Chapter 6).

Clearly, the majority of slums under study still faced a lack of adequate infrastructure. However, it was also found that quite a few of them had a history of collective action in solving problems associated with the provision of facilities. It has been contended that slum dwellers' mobilisation plays an important role in democratic politics as a means of voicing their rights, concerns and demands (Jha et al., 2007). The present study found that decision-making bodies had been established in 28 of the surveyed slums, 6 of which were equipped with small community halls; while residents of the remaining 22 settlements assembled on an ad hoc basis either in a place of worship or in the open air.

Whether or not problem solving is organised through collective action, poor neighbourhoods, including slum areas, tend to resort to such a strategy in voicing their grievances to politicians (Harriss, 2005). In return, given that slum dwellers constitute an easily manipulated 'vote bank', political representatives and candidates invariably at least promise to supply basic infrastructure in exchange for support from such populations (Edelman and Mitra, 2006). Indeed, 43 of the slums under study were found to have some form of political affiliation, and some parties had even established offices within 5 slums clusters. Accordingly, infrastructure had often been provided through political channels.

The NGO most extensively active in Indian slums areas, *Sewa Bharti* – an umbrella organisation for development and empowerment of the socially and economically

[45] Engel's coefficient is the proportion of income spent on food, which generally falls as income rises.

weaker sections of society – is affiliated to the Hindu supremacist paramilitary voluntary organisation *Rashtriya Swayamsevak Sangh* (RSS).[46] This body is known to be closely associated with the former ruling party *Bharatiya Janata Party* (BJP); thus demonstrating that political parties have indirect means of influencing slums dwellers.

However, regardless of the prevalence of decision-making bodies, it was found that slum dwellers could not easily form self-help groups that might address socio-economic issues. For example, groups that promoted microfinance initiatives – some of them linked to formal financial institutions – had only been established in 14 slum clusters; and only 1 slum had its own welfare organisation.

On the other hand, NGOs were found to have a presence in 27 of the 51 slums under study; engaging in activities such as education for the under fives, vocational training (e.g. tailoring), and health-related programmes, all of which targeted women and children. Yet, it is notable that geographical distribution was somewhat uneven. Although the overwhelming majority of slums were found to host not more than a single active NGO, one enjoyed the presence of six such organisations and another four. It may be concluded from the survey that basic infrastructure and services were generally more effective in slums that benefitted from the intervention of an active NGO. Yet, paradoxically, it emerged that such organisations tended to aid communities with better existing provision rather than those that might have gained more from the installation or rehabilitation of essential facilities. Nevertheless, it was found that slum dwellers did not generally regard NGOs to be as important as political parties.

4.8. Conclusion

Mixed methods were employed to collect and analyse the data discussed in this thesis, since this approach was judged to be best suited to the purpose of the study and the answering of its research questions. The generalisation of findings, and linkages between education and poverty, and those between poverty and child education are subjected to quantitative analysis; while the processes and causes behind these correlations are addressed solely through a qualitative approach.

[46] http://sewabharti.com/index.htm

Four hundred and seventeen households in fifty notified Delhi slums were selected using a three-stage stratified random sampling technique. Each selected slum had different characteristics; however, many of them had in common inadequate physical infrastructure that had deteriorated over time. Some settlements had a decision-making body, while politicians were universally interested in meeting slum dwellers' demands in exchange for their votes. Since most of the slums under study were populated by migrants from different parts of the country, they were not the close-knit communities typical of rural areas. Against such a background, a formal analysis of the surveyed slums is presented in the following three chapters.

Chapter 5 Education and Poverty in Post-Schooling Lives

5.1. Introduction

This chapter investigates the relationship between individual slum dwellers' level of education and poverty as determined by earnings through employment. The structure of the chapter is as follows. Section 5.2 profiles sample slum dwellers. Section 5.3 examines education level and its correlation with the socio-economic characteristics of sample slum dwellers. Section 5.4 explores the linkages between education and earnings through employment. This section includes an overview of slum dwellers' occupations, socio-economic factors that correlate with engagement in paid employment, and estimates of rates of return to education. Section 5.5 discusses the value of education in poverty alleviation as perceived by illiterate slum dwellers. The findings of the chapter are summarised in Section 5.6.

5.2. Profile of Sample Slum Dwellers

Students engaged in formal full-time education are not generally regarded as members of the labour force. Therefore, the sample analysed in this chapter is confined to those slum dwellers between the ages of 15 and 60 who were not attending any education institution at the time of the survey. This subsample consequently contains 1,156 individuals in total: 629 males and 527 females.

Table 5-1 shows the socio-economic characteristics of sample slum dwellers in comparison to those of corresponding citizens resident in Delhi city as a whole, as estimated using National Sample Survey (NSS) 2007/08 data. In both samples, there are considerably more males than females. This is primarily due to a bias against females resulting from strong social norms that give greater value to sons.[47] The data also show that Muslims and non-Muslim lower classes – such as Scheduled Castes (SCs), Scheduled Tribes (STs), and Other Backward Classes (OBCs) – tend to be more heavily concentrated in slums. Accordingly, the incidence of poverty experienced by adult slum

[47] The Census of India (2011a) reports that in Delhi, the male to female ratio is 1,000 to 866, which is much lower than the national figure (1,000: 940) (Census of India website http://censusindia.gov.in/ accessed on 15 December 2012).

dwellers – defined as the percentage of the population below the poverty line in terms of monthly per capita consumer expenditure (MPCE) – tends to be much higher than that experienced by citizens of the city in general.

Of the total number of slum dwellers in the sample, 33.6% were born in Delhi and are thus defined as 'non-migrants', while 66.4% were born outside Delhi and are therefore defined as 'migrants'. Among other places of origin both within and outside the country, 36.2% of the sample slum dwellers come from former Uttar Pradesh (now the states of Uttar Pradesh and Uttarakhand), and 12.5% come from former Bihar (now the states of Bihar and Jharkhand). Of the whole migrant sample, the average age upon migration to Delhi is 18.9 years and they have been resident in the city for an average of 16.9 years.

Migrants tend to be older than non-migrants. The mean MPCE is also higher among migrants. This is consistent with previous studies which have found that the poverty rate among migrants tends to be lower than among non-migrants (De Haan, 1997; Singh, 2009). The proportion of SC/STs in both groups is similar; however, non-migrants tend to have a larger proportion of Muslims, while migrants tend to have a larger proportion of OBCs. It is also notable that 85.9% of sample migrants come from rural areas.

Table 5-1 Socio-economic background of sample slum dwellers in comparison to the general Delhi population (2007/08)

	Delhi	Sample slum households
Population	2,784,474	1,156
Mean household size (persons)	4.6	5.9
	(2.5)	(1.8)
Mean MPCE (INR)	1481.0	627.9
	(886.9)	(336.2)
Proportion of those in household below the poverty line (%)	12.3	76.7
Proportion of females (%)	40.4	45.6
Proportion of Muslims (%)	15.5	21.2
Proportion of SC/STs (%)	27.2	39.9
Proportion of OBCs (%)	16.7	25.0
Proportion of migrants (%)	N/A	66.4

Notes: Mean standard deviations are in parentheses. The poverty line of INR 56.54 per capita per month at 1973/74 prices has been adjusted to take into account inflation as per Government of India (1993). Disaggregated NSS data on the migratory status is unavailable.
Source: NSS 2007/08 Schedule 25.2 unit level data; the author's survey.

5.3. Overview of Educational Attainment

5.3.1. Adult Slum Dwellers' Educational Attainment

The education system in India varies slightly in each state and has evolved over time. Therefore, the same total number of years of schooling has meant different things in different states at different periods. The present national education structure is basically a uniform pattern of ten years (primary, middle and secondary) + two years (higher secondary) + three years (tertiary). However, within this framework, the divisions between primary school, middle school, and secondary education are determined by the government of each state.

For example, the structure is five years of primary, three years of middle, and two years of secondary school in Delhi and certain other states; while there are different systems, such as four years of primary, three years of middle, and three years of secondary education, or four years of primary, four years of middle, and two years of secondary education in other states. It is therefore more appropriate to consider an individual's educational attainment rather than dwell too heavily on years of schooling. Education level is also linked to a qualification that is likely to have labour market value.

Table 5-2 shows the education levels of sample slum dwellers. It is clear that nearly half of them (49.3%) have never been to school, a status that is particularly prevalent amongst females (65.0%). Even the proportion of those who have completed compulsory education (i.e. schooling between the ages of 6 and 14, which is equivalent to grades 1–8, and graduation from middle school) as stipulated by the Right of Children to Free and Compulsory Education Act 2009 is only 22.9% of males and 8.7% of females. These statistics do not compare favourably with NSS (2007/08) data, from which it is estimated that the corresponding figures for Delhi as a whole are 59.9% of males and 50.1% of females.

Table 5-2 Educational attainment of sample slum dwellers aged between 15 and 60 currently not attending an education institution

		Male		Female		Total	
Education level		No.	Proportion of male subsample (%)	No.	Proportion of female sub-sample (%)	No.	Proportion of subsample (%)
Never-attended	Illiterate	193	30.63	328	62.36	521	45.07
	Able to write signature only	35	5.56	14	2.66	49	4.24
Primary school	Dropout	83	13.17	40	7.60	123	10.64
	Completed	75	11.90	61	11.60	136	11.76
Middle school	Dropout	90	14.29	30	5.70	120	10.38
	Completed	56	8.89	20	3.80	76	6.57
Secondary school	Dropout	37	5.87	12	2.28	49	4.24
	Completed	24	3.81	7	1.33	31	2.68
Higher secondary	Dropout	8	1.27	0	0.00	8	0.69
school	Completed	6	0.95	3	0.57	9	0.78
Undergraduate	Dropout	3	0.48	0	0.00	3	0.26
	Completed	7	1.11	3	0.57	10	0.87
Postgraduate	Dropout	1	0.16	0	0.00	1	0.09
	Completed	1	0.16	1	0.19	2	0.17
Non-formal education		4	0.63	1	0.19	5	0.43
Technical		1	0.16	0	0.00	1	0.09
Unknown		6	0.01	6	0.01	12	0.01
Total		630	100	526	100	1156	100

Source: The author's survey.

It is also notable that only 0.4% of the sample population has ever studied at a non-formal education institution. Such schooling offered by both government and non-governmental institutions has a fairly old tradition in India, particularly in the case of the latter, but the situation remains similar amongst children under the age of 14 years (see Chapter 7). Moreover, attendance of a technical college was only reported by one person (0.1% of the sample). Access to formal technical education such as that provided by a government-run industrial training institute (ITI) or a private industrial training centre (ITC) can only be gained after graduation from middle school at least. Accordingly, the vast majority of adult slum dwellers under study were found to be unqualified to apply for such formal technical education.

In terms of school type, the overwhelming majority of sample slum dwellers attended government school. A total of 24 – 4.2% of those having received any formal education – attended a private school. Such institutions included those run by non-governmental organisations (NGOs) and religious charities (eight to a standard private school, seven to an NGO school, and nine to a charity school). With regard to level, the number of

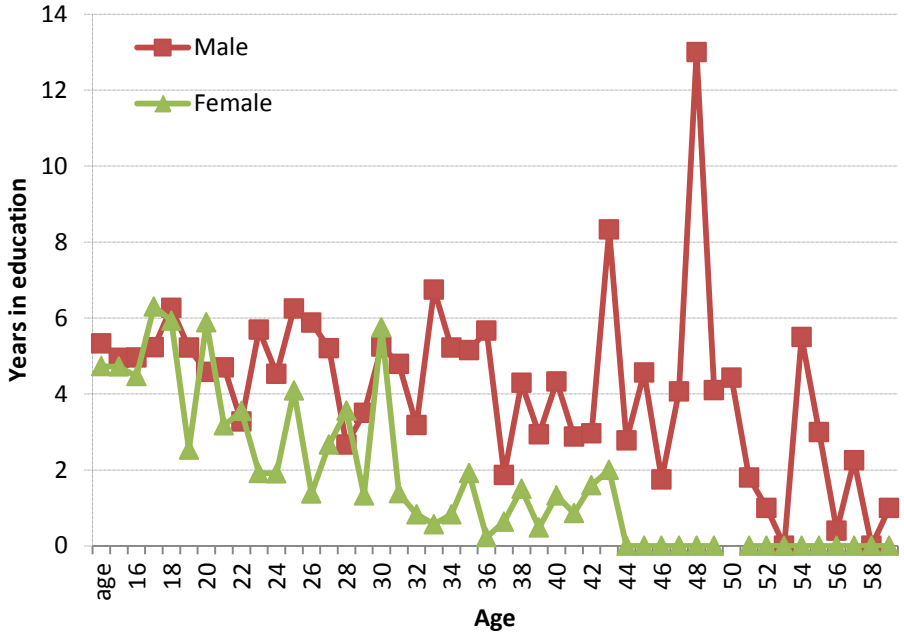
pupils who were privately educated falls dramatically from those completing the second tier of primary school to those staying on to graduate from secondary school: 15 primary, 10 middle, 1 secondary, and 1 senior secondary (one person studied at an NGO school from primary to senior secondary level). The location of the school varies widely, both within and outside Delhi, in respect of those who attended standard private school, but is dominated by Delhi-based institutions with regard to those who went to NGO schools. In terms of age, all but 2 are below the age of 35 years. By gender, only 20% is female.

In short, only in rare instances did sample slum dwellers attend a school run by a non-state provider, and those who were educated at such institutions are confined to younger males who in the main only completed the lower grades. This implies that non-state providers are fairly new phenomena, particularly in rural areas. The issue of private education among the present school-going generation is discussed further in Chapter 7.

Although the overall level of educational attainment tends to be low in slums, it might have increased over the years. To capture such development in a simple way, Figure 5-1 shows the mean years of education of sample slum dwellers by age and gender. As expected, the younger generation tend to be more highly educated than their parents. At the same time, the disparity in terms of gender has narrowed in the younger generation. Among those in their late teens and early 20s, mean years of education do not vary greatly between the sexes. However, the difference becomes increasingly apparent with those in their mid-20s, until the situation is reached in which no woman above the age of 44 has ever attended an education institution. Older men are also less likely to have completed the present compulsory education minimum of eight years.[48]

[48] The higher levels of education among males such as 44-years-olds (an average of 8.3 years) and 49-years-olds (an average of 13.0 years) can be regarded as outliers. In fact, the sample for these age groups was limited and those in it happened to be highly educated.

Figure 5-1 Mean years of education by age and gender



Source: The author's survey.

Table 5-3 shows the reasons why slum dwellers never attended school, dropped out, or, having completed a certain level, failed to proceed any further. Several points can be drawn from the data as follows. Firstly, there is a marked difference between the genders. Financial constraints prevent males from attending school at most levels, while a negative perception of education by parents is the major obstacle impeding females from attending school up to the completion of the middle level.

Secondly, the support of peers and classmates plays an important role in continued attendance regardless of gender, area (rural or urban) or level of education. Even people under the age of 20 cited lack of a good relationship with peers as a reason for withdrawal.

Thirdly, distance to school – related in part to lack of support – is a significant factor in the non-completion of education, particularly in rural areas. It seems that distance was much more of obstacle to access in the past, when fewer schools were available. A slum dweller who as a child lived in a village in which there was no government school commented:

> The education environment was not good and the school was too far (Kailash – 61 years – educated up to 3rd grade in Bihar).

Fourthly, poor academic performance at the primary level acts as an effective deterrent to progress to the middle, let alone secondary and senior secondary levels. It seems that academic performance is a driving force behind the underlying principle of schooling, particularly in the higher grades. As it is generally assumed that both financial and opportunity costs of education are higher when pupils reach the senior grades, good academic performance is required if households are to continue to send their children to school.

Fifthly, children's own unwillingness is higher amongst boys than girls, which is mainly an effect of the finding that females are less likely to have ever attended school. To put it other way, boys are allowed to choose whether or not they go to school to a greater extent than girls. Although unwillingness to engage in education may have many root causes, such reluctance can be exacerbated by the environment in rural government schools. As documented in the Public Report on Basic Education (PROBE) (1999) and its follow-up survey (De et al., 2011), those who attended village schools have pointed out retrospectively that teaching time in such institutions tends to be limited and the quality of education low. Such shortcomings are corroborated by the present study:

> The teachers only came two or three times a week (Gautam –45 years old – educated up to 3rd grade in Bihar).

Lastly, contribution to household income is stated as a reason for not going to school by more boys than by girls, reflecting the fact that there is a much larger male than female labour force in India.

When the older generation of slum dwellers between the ages of 15 and 60 is compared with the present cohort of compulsory school-age children (see Chapter 7, tables 7-3 and 7-4), on the one hand, negative parental perception of education as a major reason for non-enrolment is no longer so prevalent. However, on the other hand, financial constraint is a major reason for non-attendance among both older and current generations. Views on education may have changed comparatively easily, but structural

constraint – i.e. the financial burden – is not so easily overcome for the lower socio-economic strata of society. This implies that income poverty continues to adversely affect education access.

Table 5-3 Reasons cited by slum dwellers for non-enrolment, dropout, or failure to progress beyond various levels of education (multiple answers)

Never attended			
Reason	Male	Female	Total
Parents think it unnecessary	47	223	270
Financial constraints	137	90	227
Lack of good company	20	31	51
Own unwillingness	36	8	44
Prioritisation of (other) boys' education	8	22	30
Participation in household economic activities	16	7	23
Employment	12	3	15
School too far	8	5	13
Domestic chores/looking after siblings	0	11	11
School dysfunctional	1	3	4
Family member's illness or death	1	3	4
Uninteresting curriculum	2	1	3
Migration	1	1	2
Own illness	1	1	2
No available good school nearby	2	0	2
Below primary (primary school dropout)			
Reason	Male	Female	Total
Financial constraints	29	6	35
Own unwillingness	26	8	34
Own poor performance	11	4	15
Lack of good company	12	3	15
Parents think it unnecessary	1	12	13
Domestic chores/looking after siblings	0	5	5
Family member's illness or death	3	1	4
School dysfunctional	2	2	4
Migration/visiting home village	4	0	4
School too far	2	2	4
Language problems	3	0	3
Unsuitable school Infrastructure	2	0	2
School closed	2	0	2
Uninteresting curriculum	1	0	1
Bullying/discrimination at school	1	0	1
Own bad behaviour	1	0	1
Participation in household economic activities	1	0	1
Marriage of brother	0	1	1

Table 5-3 (continued)

Primary completed (primary school graduation + middle school dropout)			
Reason	Male	Female	Total
Financial constraints	66	23	89
Own unwillingness	38	7	45
Parents think it unnecessary	2	37	39
Own poor performance	22	4	26
Lack of good company	12	12	24
School too far	12	9	21
Participation in household economic activities	11	2	13
Family member's illness or death	10	2	12
Domestic chores/looking after siblings	2	6	8
Migration/visiting home village	6	1	7
Employment	4	1	5
Unsuitable school infrastructure	2	0	2
Language problems	2	0	2
Own bad behaviour	2	0	2
Own illness	2	0	2
Own engagement/marriage	1	1	2
School dysfunctional	1	0	1
Prioritisation of (other) boys' education	0	1	1
Expelled from school	1	0	1
Middle completed (middle school graduation + secondary school dropout)			
Reason	Male	Female	Total
Financial constraints	48	7	55
Own unwillingness	21	8	29
Own poor performance	22	6	28
Employment	13	1	14
Parents think it unnecessary	3	7	10
Participation in household economic activities	9	0	9
Lack of good company	4	1	5
School too far	3	1	4
Own engagement/marriage	2	1	3
School dysfunctional	2	1	3
Unsuitable school Infrastructure	2	0	2
Migration/visiting home village	1	1	2
Domestic chores/looking after siblings	0	2	2
Uninteresting curriculum	1	0	1
Bullying/discrimination at school	1	0	1
Family member's illness or death	0	1	1
Wanted to take vocational course	0	1	1

Table 5-3 (continued)

Secondary completed (secondary school graduation + higher secondary school dropout)			
Reason	Male	Female	Total
Financial constraints	14	5	19
Employment	10	1	11
Own unwillingness	6	1	7
Own poor performance	3	2	5
Family member's illness or death	2	2	4
Participation in household economic activities	3	0	3
Own engagement/marriage	0	2	2
Parents think it unnecessary	0	2	2
Own bad behaviour	1	1	2
Enrolled in vocational course	1	0	1
Below tertiary (Higher secondary school completed + tertiary level dropout)			
Reason	Male	Female	Total
Financial constraints	2	1	3
Employment	3	0	3
Own unwillingness	1	0	1
University/college too far	0	1	1
Own engagement/marriage	1	0	1
Parents think it unnecessary	0	1	1

Source: The author's survey.

5.3.2. Correlation between Socio-economic Characteristics of Slum dwellers and Education Level

It emerged that although the education level of slum dwellers tends to be low, it still varies markedly. Therefore, the question arises as to exactly who attained the higher levels of education. Although this analysis is confined to explanatory variables concerning individuals, households and locations – there are no data available on school-based variables such as student to teacher ratio or school facilities in local areas – it can draw on data on study participants' backgrounds, including location of upbringing and/or education; father's employment history; and parental landholdings. Such information is not usually available in secondary data, including the NSS.

Slum dwellers' characteristics in terms of grade attainment were analysed by ordered probit regression. Dependent variables are related to level of education: 0 if an individual has never attended school; 1 if grade attainment is below primary level; 2 if primary school has been completed; 3 if middle school has been completed; 4 if secondary school has been completed; 5 if higher secondary school has been completed;

and 6 if a tertiary level course of study or above has been completed. The dependent variable mean is 1.2 with a 1.4 standard deviation.

Table 5-4 shows explanatory variable descriptive statistics for the 15–60 years sample. It is assumed that males and members of the younger generation are more likely to attain a higher education level, while the disadvantaged – being from a lower caste (OBC or SC/ST) or member of a minority (Muslim) – are expected to have lower educational attainment.

Place of origin includes regions categorised as ‘North’ (Himachal Pradesh, and Jammu and Kashmir); ‘North West’ (Haryana and Punjab); ‘South’ (Kerala and Tamil Nadu); ‘East’ (Assam, Odisha and West Bengal); ‘West’ (Maharashtra and Gujarat); ‘Northern underdeveloped region’ (the current states of Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Rajasthan, Uttarakhand, and Uttar Pradesh); and ‘outside India’ (Bangladesh and Nepal). Slum dwellers brought up in northern underdeveloped regions (54.8% of the sample) are presumed less likely to be as highly educated as those schooled in Delhi (33.6% of the sample).

Categorisation of area takes into account the physical environment in which individuals were raised, that is, ‘rural’, ‘urban non-slum’, or ‘urban slum’. Those educated in rural areas (57.2% of the sample) or slum areas (27.9% of the sample) are not expected to be as highly educated as those from urban non-slum areas (7.6% of the sample).

The literature suggests that school enrolment generally increases with parental education level, particularly that of the mother (e.g. Behrman et al., 1999). Parental education level in the sample is low: only 1.3 years for fathers and 0.2 years for mothers.[49]

[49] The location of parents’ education may be significant; in particular, whether or not they were schooled in Delhi. However, this information is not available for all sample slum dwellers.

Table 5-4 Summary of descriptive statistics

Variable	Mean	Std. Dev.	Min	Max
Female*	0.4381	0.4965	0	1
Male	0.5441	0.4983	0	1
Age				
*15–29**	0.4498	0.4977	0	1
30–39	0.2725	0.4454	0	1
40–49	0.1998	0.4000	0	1
50–60	0.0779	0.2681	0	1
Caste & religion				
General caste*	0.2178	0.4129	0	1
OBC	0.2496	0.4329	0	1
SC/ST	0.3986	0.4898	0	1
Muslim	0.2116	0.4086	0	1
Place of origin (state)				
Born in Delhi *	0.3359	0.4725	0	1
Northern underdeveloped	0.5484	0.4979	0	1
North	0.0026	0.0509	0	1
North West	0.0536	0.2254	0	1
South	0.0104	0.1014	0	1
East	0.0311	0.1738	0	1
West	0.0095	0.0971	0	1
Outside India	0.0069	0.0829	0	1
Place of origin (area)				
Urban non-slum*	0.0761	0.2653	0	1
Rural	0.5718	0.4950	0	1
Urban slum	0.2794	0.4489	0	1
Father's occupation				
Agricultural labourer*	0.0623	0.2418	0	1
Unskilled manual	0.2837	0.4510	0	1
Skilled manual	0.1765	0.3814	0	1
Transport	0.0087	0.0926	0	1
Trade and sales	0.1713	0.3769		
Professional	0.0242	0.1538	0	1
Farmer (landowner)	0.1427	0.3500	0	1
Manual in public sector	0.0311	0.1738	0	1
Parental education (years)				
Father's education	1.2704	2.7823	0	17
Mother's education	0.2457	1.3239	0	15

Notes: * indicates reference category. N = 1,156.

Although data on the extent of land held by parents during their lifetimes are available, it might not be appropriate to measure household economic conditions in urban areas in terms of such assets. Therefore, the father’s occupation is used as a proxy for the

household's economic situation. Accordingly, those with professional or semi-professional occupations are expected to be more likely to send their children to school compared to agricultural labourers (see list of fathers' occupations in Appendix 4, List A). Since there may be colinearity between the father's occupation and education level, estimations were also made with education variables and occupation dummies separately.

The results are given in Table 5-5. As expected, males are more likely to attain higher education levels. In comparison to those in their late teens and 20s, the older generation is significantly less likely to have attended school for long. Those from urban slum areas are less likely to have stayed on to the higher grades than those who were brought up in urban non-slum areas. However, this is not necessarily the case for those from rural areas (although the coefficient is negative).

Similarly, those from the eastern part of the country or outside India are less likely to have reached the higher grades in comparison to those who were brought up or educated in Delhi. However, the coefficient for underdeveloped regions is negative although statistically insignificant. To put it another way, even if slum dwellers do come from underdeveloped regions of India, this does not adversely affect grade attainment.

With regard to caste and religion, underprivileged groups such as SC/STs, OBCs, and Muslims are significantly less likely to have reached the higher grades than general castes. It is also notable that of the present generation of compulsorily educated children aged 5 to 14 in Delhi slums, SC/STs have not been found to be educationally disadvantaged (see Chapter 7). This can be interpreted as an indication that caste discrimination has slowly diminished over the years, and/or that caste in terms of education access is a relatively insignificant factor in urban areas, even at the lower strata of society.

Having a father who has a professional occupation, or is a landowner farmer or manual labourer in the public sector – in comparison with one who is a farm labourer – has a positive correlation with schooling. Paternal education also has a positive influence.

Nevertheless, a slightly surprising result is that maternal education has no significant correlation.

In short, the following factors were identified as having a positive correlation with educational attainment, even if an individual came from a rural area or underdeveloped region of the country: being male; being a member of the younger generation; being a member of an upper caste; and having an educated father who is a professional, farmer, or manual labourer in the public sector.

Table 5-5 Ordered probit estimates of educational attainment

	Eq (1)		Eq (2)		Eq (3)	
	Coefficient	Robust standard error	Coefficient	Robust standard error	Coefficient	Robust standard error
Male	0.8660	0.0714 ***	0.8347	0.0711 ***	0.8503	0.0705 ***
Age						
30–39	-0.3729	0.0881 ***	-0.5258	0.0859 ***	-0.3083	0.0869 ***
40–49	-0.7170	0.1045 ***	-0.8174	0.1032 ***	-0.6379	0.1015 ***
50–60	-0.9799	0.1857 ***	-1.1487	0.1817 ***	-0.8733	0.1799 ***
Caste & religion						
OBC	-0.3335	0.1162 ***	-0.3278	0.1178 ***	-0.3899	0.1168 ***
SC/ST	-0.3993	0.1053 ***	-0.4436	0.1024 ***	-0.5020	0.1051 ***
Muslim	-0.5626	0.1219 ***	-0.6317	0.1203 ***	-0.6457	0.1208 ***
Place of origin (state)						
Northern underdeveloped	-0.1085	0.1533	-0.0350	0.1566	-0.1135	0.1521
North	0.2556	0.3849	-0.0439	0.4552	0.3043	0.3534
North West	-0.2688	0.1998	-0.2298	0.2052	-0.2644	0.1996
South	-0.5891	0.4273	-0.6246	0.4282	-0.6674	0.4117
East	-0.4028	0.2163 *	-0.3633	0.2280	-0.5350	0.2152 **
West	-0.4162	0.4101	-0.4847	0.4044	-0.5073	0.4145
Outside India	-0.9773	0.3642 ***	-0.9594	0.3736 ***	-1.1598	0.3483 ***
Place of origin (area)						
Rural	-0.0963	0.1532	-0.1987	0.1501	-0.1131	0.1481
Urban slum	-0.2247	0.1138 **	-0.2541	0.1131 **	-0.2773	0.1107 **
Father's occupation						
Unskilled manual	-0.0647	0.1119	-0.0282	0.1105		
Skilled manual	0.1702	0.1214	0.2251	0.1189 *		
Transport	0.3260	0.3120	0.6038	0.3234 *		
Trade and sales	0.1073	0.1266	0.1388	0.1253		
Professional	0.6536	0.2335 ***	1.2856	0.2329 ***		
Farmer (landowner)	0.4046	0.1417 ***	0.4482	0.1395 ***		
Manual in public sector	0.8571	0.2598 ***	0.9033	0.2493 ***		
Parental education (years)						
Father's education	0.1091	0.0140 ***			0.1212	0.0136 ***
Mother's education	0.0092	0.0292			0.0055	0.0304
No. of observations	1125		1131		1125	
Pseudo R^2	0.1288		0.1071		0.1174	

Note: ***, ** and * indicate statistical significance at 1%, 5% and 10% respectively.

5.4. Linkages between Education and Earnings through Employment

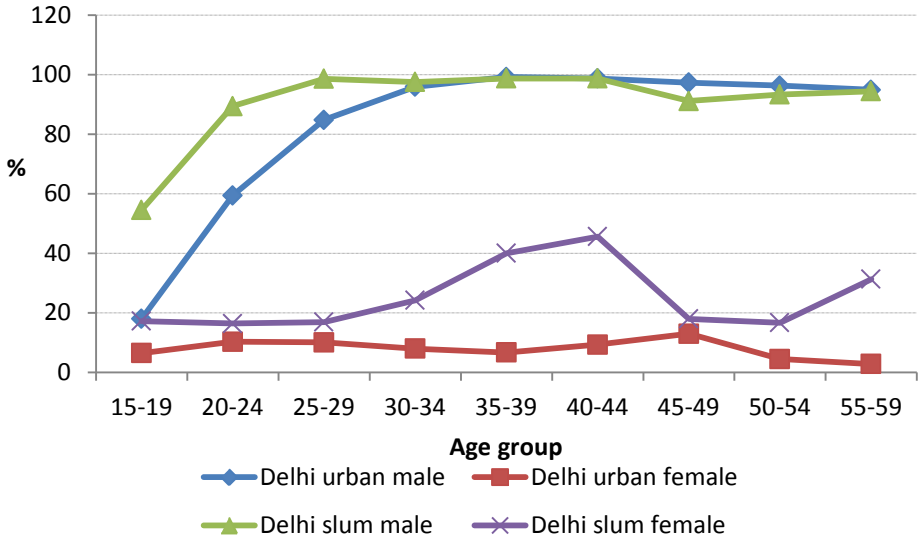
As pointed out in the previous section, the overall level of education among slum

dwellers tends to be low. In the sample, the mean length of schooling is only 3.1 years, nearly half are illiterate, and only a quarter of them were educated beyond the primary level. When those who never went to school or only attended for a few years grew up, what were their life experiences? This section examines the role of education in earnings through paid employment.

5.4.1. Overview of Slum Dwellers' Jobs

Defined as engagement in any form of paid employment during the previous 12 months, work participation amongst the sample is 87.3% of males and 25.4% of females. These figures are much higher than those returned by the NSS (2009/10) for urban Delhi as a whole (see Figure 5-2). It is apparent that slum dwellers start work relatively early and continue into old age, probably because their households require the maximum possible number of members – males in particular – to be employed in order to secure a livelihood.

Figure 5-2 Work participation in Delhi by population section



Source: Government of India (2011b); the author's survey.
Notes: NSS data employ the term 'usual activity status' (principal and subsidiary status taken together). Slum data includes those aged 60 years.

However, a higher work participation rate in the slums under study does not mean that individuals in the sample had been continuously employed for the previous 12 months. In terms of gender, males tended to be engaged in paid work for longer than females, the average period of sustained employment being 10.7 months for the former and 10.1

months for the latter. In responses to the multiple choice questionnaire, both males and females cited an inability to find work as the principal reason for spells of unemployment (26.6% of male and 18.7% of female workers). Additional reasons among males included occasional visits to their home village (10.7%) and illness (4.0%), while for females a temporary layoff (6.0%) was the second most common explanation.

Why and how did slum dwellers become engaged in their current economic activity? According to responses to the questionnaire, for most, it was because a particular job was available (42.3% of male and 49.3% of female workers), followed by interest in a particular job (23.1% of male and 22.4% of female workers). Some male workers (14.6%) noted that they had trained to do their current job, while no female had had such training.

With regard to the process of securing employment, approximately half of male workers had found their current job independently; while 35.4% of females had also found their current job on their own, closely followed by 29.2% who had secured employment though neighbours or friends, and 29.2% who had found work through their spouse or close relatives.

It thus appears that for females a neighbourhood or kinship network plays an important role in finding a job.[50] This is mainly due to the fact that women tend to be limited in mobility and have comparatively less exposure to the environment outside the home or slum cluster. Interestingly, 86.2% of female workers in the sample had not worked previously, that is, their current position was their first job.

In contrast, 43.0% of male workers had had one or more previous jobs. Even among those males aged between 15 and 19, 20.3% had had at least two jobs, and the number of previous jobs unsurprisingly increased with age. Accordingly, it may be concluded

[50] There may be a distinction between those who find work through a conscious search, and those who happen to be approached with an employment offer by people such as neighbours or relatives while they are not particularly looking for a job. It is not possible to definitely separate the two categories in this study. However, due to the social convention meaning that upper caste women or those from a ‘good’ family tend to withdraw from the labour market, this study assumes that most employed females in its sample fall into the first group.

that male slum dwellers tend to start to work at an earlier age – as child labourers in some cases– and change jobs more frequently compared to their female counterparts.

A distinctive characteristic of sample slum dwellers' employment is informality in terms of job security and contractual arrangements. Two main criteria often define such informality: social security and job security (e.g. Government of India, 2008). Of the 686 sample slum dwellers who had been engaged in paid employment in the previous 12 months, those entitled to social security – i.e. a pension – amounted to only 9 males and 1 female. Similarly, the extent of fringe benefits was extremely limited: only 19 regular waged or salaried workers in the sample enjoyed sick or paid leave. Even among the 23 public sector workers, those entitled to a pension and paid leave comprised just 8 and 10 respectively. Moreover, of all the workers in the sample, only 2.6% were members of any trade union, and only 11.1% had a relevant employment-related identification card.

It should be emphasised that regular waged or salaried employment – defined by the NSS as that of an individual who works for another's farming or non-farming enterprise and receives in return wages or a salary on a regular basis – which accounts for 39.1% of the sample (37.3% of male and 46.4% of female workers), does not mean that such an occupation is stable in respect of working terms and conditions. Of the sample, 87.3% was engaged according to an informal contract in all but a few cases. For example, 90.6% of salaried workers could be laid off without notice.

Defined by the NSS as an individual who is casually engaged in another's farming or non-farming enterprise, and in return receives wages according to the terms of a daily or periodic work contract, casual labourers comprise 18.7% of the sample. There is a distinctive gender difference in this category: while only 10.7% of female workers are identified as casual labourers, 20.8% of male workers fall into this group. The overwhelming majority of construction workers in the sample are also categorised as casual labourers, mainly because 64.7% of those in this category were employed through a *thekedar* (middleman). It was found that 65.9% of casual labourers in the sample received their wages on a daily basis and that no major fringe benefits were

provided.

Defined by the NSS as an individual who operates their own farming or non-farming enterprise, is engaged independently in a profession or trade on their own account, or with one or more partners, self-employment represents 42.2% of workers in the sample, 40.0% being own-account operators and 2.2% employers. There is little gender difference here since 41.9% of male and 42.5% of female workers fall into this category. However, there is a gender difference – 2.5% of male workers as opposed to 0.8% of female workers – with regard to 'employer' in the self-employment category. In terms of occupation, 82.2% of sales and trade sector workers were self-employed. Business was predominately conducted in the street (60.6% of the sales and trade workers); followed by the house (16.1%), shop premises separate from the home (13.1%), and door-to-door (10.2%).

Overall, employment conditions among sample workers tended to be unstable. Informal employment without job or social security was pervasive, even among those employed in the public sector.

5.4.2. Engagement in Paid Employment

5.4.2.1. Estimates

Analysis of the correlation between engagement in paid employment and individual characteristics is conducted in the following manner. A dependent variable is assigned a value of 1 if an individual was engaged in any paid employment in the previous 12 months and 0 otherwise. Paid employment includes salaried work and income-generating self-employment. Unpaid individuals engaged in enterprises run by household members are not regarded as being in paid employment. Therefore, individuals not participating in paid employment comprise a combination of those not in the labour force, those who were unemployed for the whole of the previous 12 months, and unpaid family members assisting in an enterprise.

Explanatory variables include age and age squared. It is assumed that both the young and the elderly are less likely to be engaged in paid employment. Married males –

including those currently married, widowed, separated or divorced – are more likely to go to work than those who have never been married; but this is less probable in terms of their female counterparts due to social norms related to the gender division of labour. Household heads are more likely to be in paid employment than other family members.

With regard to household characteristics, number of children under 14 years and proportion of males in the household are used as variables. The father's level of education is adopted as a proxy both for current household characteristics and, as necessary, for family background.

Disadvantaged dummies in terms of caste and religion are given as SC/ST, OBC and Muslim in comparison to general castes. A migration dummy variable of the value of 1 if a slum dweller was not born in Delhi and 0 otherwise is also added.

Education level variables in comparison to attainment below the level of primary school are: (1) completion of primary school; (2) completion of middle school; and (3) completion of secondary school and above. Since the number of subsample slum dwellers who completed higher secondary school, and tertiary education (undergraduate and postgraduate) are limited to 12 (9 males and 3 females) and 13 (9 males and 4 females) respectively, all such highly educated individuals are merged with those who have completed secondary school only. At the same time, completed years of schooling are used as an explanatory variable, which may enable differentiation of the effect of higher education on paid employment.

Location (district) variables for slum dwellers' place of residence are also included. Additionally, an individual's ill-health dummy variable (1 if a person has been debilitated by sickness for more than 7 consecutive days during the previous 12 months and 0 otherwise) is added, which is likely to have a negative association with employment.

5.4.2.2. Results: Mean Comparison

Table 5-6 shows mean values for employed and unemployed slum dwellers separately.

Employed males are more likely to be older than unemployed males and also head of household. Working males have more children than their unemployed counterparts, as a larger family means greater economic responsibility. Migrants are more likely to be employed since the main reason for migration is the hope of better work prospects; while non-migrants are less likely to be employed, probably because they tend to be younger (averages of 23.5 years for non-migrants and 35.8 years for migrants).

Table 5-6 Comparison of variable means across subsample

	Male			Female		
	Worked	Not worked		Worked	Not worked	
Age	33.35	22.50	***	34.11	30.67	***
Age squared	1236.47	651.23	***	1266.65	1,071.29	**
Married	0.76	0.16		0.84	0.81	
General caste	0.22	0.30		0.22	0.20	
OBC	0.23	0.30		0.22	0.26	
SC/ST	0.40	0.32		0.44	0.39	
Muslim	0.22	0.24		0.20	0.21	
Migrant	0.72	0.42	***	0.64	0.64	
Non-migrant	0.28	0.58	***	0.36	0.35	
More than one week of illness	0.07	0.11		0.13	0.11	
Children below 14	2.07	1.71	**	2.28	2.25	
Household head	0.63	0.11	***	0.13	0.01	***
Male ratio	0.60	0.63		0.50	0.53	**
Father's education	1.22	1.53		1.05	1.33	
Below primary school	0.46	0.33	**	0.79	0.69	**
Primary school	0.24	0.44	***	0.12	0.19	
Middle school	0.15	0.12		0.02	0.07	
Secondary school and above	0.08	0.07		0.03	0.02	
Education (years)	4.10	4.89	*	1.49	2.17	**
No. of observations	549	80		134	390	

Notes: ***, ** and * indicate that the difference between means is greater than zero at a statistically significant level of 1%, 5% and 10% respectively. District dummies are not shown in this table.

Average length of education is shorter among working males than unemployed males. Attainment below the level of primary school – including illiteracy – tends to be higher among working males than unemployed males. Working males are also significantly less likely to have completed primary school than their unemployed counterparts. This implies that the relatively uneducated male has no choice but to work, while the higher educated male is able to wait until he can find a job suited to his education level.

Employed women also tend to be older than their unemployed counterparts. A female head of household is more likely to be engaged in paid work than other female members of the household. This is consistent with the finding that working females tend to be from households with a lower proportion of male members. Years of schooling are extremely limited in the female subsample. Moreover, the average length of education for female workers (1.5 years) is significantly lower than that of those who are not employed (2.2 years). Therefore, female workers are again less likely to be educated (attainment below the level of primary school) in comparison with their unemployed counterparts. It thus seems that the least educated in terms of both male and female slum dwellers tend to go to work.

5.4.2.3. Results of Probit Regression

Table 5-7 shows the probit regression results. Both younger and older individuals are less likely to go to work. Marriage has a significant association with employment status, but shows contrasting effects by gender. More males who are or have been married tend to be in paid employment than is the case with their unmarried counterparts. Conversely, females who are or have been married are less likely to go to work than single females. The labour norm gender division, that is, married males going out to work and married females staying at home to do the housework, is thus clearly demonstrated.

Nevertheless, a female head of household is more likely to be engaged in economic activities than other members of the family. The probability of her being in paid employment is 61.6 (Equation 1) to 62.8 (Equation 2) percentage points higher than for a female who is not the head of household. Indeed, the former has no choice but attempt to earn as much as possible, given that there are often no adult males in the household and thus no one else to act as breadwinner.

Ill health prevents male slum dwellers from engaging in paid employment, but this is not the case with regard to females. This finding confirms the notion that working women in slums tend to be desperate to maintain earning opportunities at all costs.

Table 5-7 Probit estimate of paid employment

	Male							
		Eq (1)				Eq (2)		
	Coefficient	Robust standard error		Marginal effect	Coefficient	Robust standard error		Marginal effect
Age	0.2523	0.0589	***	0.0205	0.2674	0.0613	***	0.0203
Age squared	-0.0036	0.0007	***	-0.0003	-0.0037	0.0007	***	-0.0003
Married	0.8154	0.3585	**	0.0902	1.0300	0.4576	**	0.0892
OBC	-0.3239	0.2512		-0.0322	-0.3609	0.2519		-0.0304
SC/ST	-0.0114	0.2480		-0.0009	-0.0617	0.2456		-0.0009
Muslim	-0.0459	0.2956		-0.0047	0.0725	0.3054		-0.0038
Migrant	0.1308	0.1862		-0.0114	0.1819	0.1890		0.0110
More than one week of illness	-0.6976	0.3064	**	-0.0923	-0.6632	0.3028	**	-0.0932
Children below 14	0.0260	0.0619		0.0024	0.0243	0.0618		0.0021
Household head	0.4205	0.5092		0.0351	-0.1469	0.4892		-0.0362
Male ratio	0.2630	0.5963		0.0247	0.3292	0.5912		0.0212
Father's education	0.0148	0.0337		0.0014	0.0179	0.0332		0.0012
Primary school	-0.3268	0.1944	*	-0.0322				
Middle school	0.0581	0.2564		0.0030				
Secondary school and above	-0.4548	0.3901		-0.0628				-0.0030
Education (years)					-0.0349	0.0266		-0.0030
Constant	-3.1976	0.9983	***		-3.5293	1.0445	***	
District dummy		Yes				Yes		
N		605				602		
Pseudo R^2		0.3446				0.3513		
	Female							
		Eq (1)				Eq (2)		
	Coefficient	Robust standard error		Marginal effect	Coefficient	Robust standard error		Marginal effect
Age	0.3032	0.0553	***	0.0889	0.3065	0.0555	***	0.0907
Age squared	-0.0038	0.0008	***	-0.0011	-0.0038	0.0008	***	-0.0011
Married	-1.2139	0.3159	***	-0.4245	-1.2159	0.3125	***	-0.4270
OBC	-0.1752	0.2303		-0.0496	-0.1409	0.2298		-0.0406
SC/ST	-0.0077	0.2154		-0.0023	0.0084	0.2141		0.0025
Muslim	-0.2200	0.2552		-0.0611	-0.1827	0.2532		-0.0517
Migrant	-0.2677	0.1636		-0.0806	-0.2791	0.1627	*	-0.0849
More than one week of illness	0.0886	0.2131		0.0267	0.0675	0.2107		0.0204
Children below 14	-0.0212	0.0477		-0.0062	-0.0259	0.0479		-0.0077
Household head	1.7413	0.4125	***	0.6160	1.7886	0.4056	**	0.6282
Male ratio	-1.0638	0.4608	**	-0.3118	-1.0106	0.4558	***	-0.2991
Father's education	-0.0201	0.0277		-0.0059	-0.0127	0.0268		-0.0038
Primary school	-0.0724	0.2057		-0.0208				
Middle school	-0.6148	0.3770		-0.1405				
Secondary school and above	0.4672	0.4361		0.1580				
Education (years)					-0.0096	0.0261		-0.0028
Constant	-4.5741	0.8335	***		-4.7063	0.8366	***	
District dummy		Yes				Yes		
N		502				506		
Pseudo R^2		0.1670				0.1639		

Notes: ***, ** and * indicate significance at 1%, 5% and 10% respectively. Marginal effects were calculated using mean values of continuous explanatory variables while the binary variables were set at zero.

Female migrants are less likely to be engaged in paid employment than non-migrant females. Interestingly, when the migrant dummy variable is disaggregated into (1) those who migrated to Delhi in the previous ten years, and (2) those who migrated to Delhi more than ten years ago, only the former variable is significantly negative in both equations (the result is not shown for brevity).

As shown in Section 5.4.1, kinship and/or a neighbourhood network plays an important role in the likelihood of women finding a job. Therefore, it can be inferred that females born in Delhi have more extensive information on available employment opportunities. Indeed, most sample females employed in manufacturing were born in Delhi.

When it comes to education level, both males and females with a greater amount of schooling are less likely to work than the relatively less educated, although the coefficients are insignificant. In particular, men who have completed primary school are significantly less likely to be engaged in paid employment than counterparts whose educational attainment is below the primary level.

The relationship between education and participation in waged employment is nonlinear in both males and females, but slightly different in each subsample. As far as men are concerned, although only primary schooling is significant, those who have completed middle school are more likely to be in paid employment than those whose education attainment is below primary. At the same time, those who have completed only primary school or, conversely, secondary school and above are less likely to work than those whose education attainment is below primary. Those who have only completed primary school might face difficulty in finding a job, and those who have completed secondary school and above might not be able to find a job perceived to be ‘suitable’ in accordance with their educational attainment.

Females who have completed at least secondary school are more likely to be engaged in paid work than those whose education attainment is below primary, although the coefficient is insignificant. At the same time, those who have completed primary or middle school are less likely to be employed than those whose education attainment is

below primary (although both coefficients are again insignificant).

Thus, the correlation between education level and participation in waged employment differs by gender, the pattern being roughly convex for females while it is neither concave nor convex for males.

5.4.3. Earnings

Sample slum dwellers' current main occupations are divided into nine categories based on the National Classification of Occupations (NCOs) - 2004 issued by the Indian Ministry of Labour[51] (see Appendix 4, List B for details). It should be noted that in general, the slum dwellers under study did not have multiple economic activities: only five (four males and one female) were engaged in two jobs simultaneously. In these cases, occupations are categorised based on the main source of earnings.

According to the sample, male workers were engaged in quite a spread of occupations, such as sales and trade (24.2%), manufacturing (19.9%), services (17.9%), construction (13.1%), and transport (13.3%). In contrast, female workers were largely employed in service industries – domestic service in particular – (44.8%), followed by jobs in the manufacturing sector (23.9%), and sales and trade, that is dealing in various consumables, such as vegetables, principally in the street (20.1%). No female was engaged in technical or repair work, or the transport sector.

Analysis of the nexus of migration and occupation categories reveals that sample workers who migrated to Delhi within the previous 12 months engage in the transport sector or service industries only (only three workers); and female migrants who came to Delhi within the previous five years (only four employed women in this category) are engaged purely in service industries. However, as migrants become more settled in the city, their occupational categories diversify. Although the number of new migrants in this sample, that is, those who had migrated to Delhi during the previous five years, is limited (31 workers), particularly in respect of females, the survey supports the assumption that migrants are largely engaged in the informal services sector, which

[51] http://www.dget.nic.in/nco/ (accessed on 28 December 2008).

represents the lower rungs of economic activity. This finding contrasts with the existing literature on the Indian urban labour market (e.g. Banerjee, 1986; Papola, 1986), although there have been no major studies exclusively on migrants in this labour market after economic reform in the early 1990s. Nevertheless, it is worth mentioning that newcomers do not easily obtain semi-professional jobs: the most recent sample migrant working in this category came to Delhi nine years ago.

In terms of social grouping, it has been suggested that caste segmentation has not been eradicated in the Indian urban labour market (Banerjee and Knight, 1985; Madheswaran and Attenwell, 2007). Indeed, a closer look at each category reveals that caste-based segmentation is not completely absent in respect of access to certain occupations. For example, semi-professional positions are predominantly occupied by general castes and OBCs, while the proportion of those from SCs in this category amounts to only 15.4% of the male subsample, and is actually zero with regard to the female subsample.

Moreover, jobs such as male entertainer are pursued by specific Hindu and Muslim castes, with individuals mostly belonging to those groups associated with traditional magic or street performance. Additionally, significant numbers of those in the sample from SC/STs work in service industries (51.3% of total workers in this category), construction (49.4%), and transport (45.7%). It seems that such high proportions of SC/ST members in comparison to other caste groups are reflected in these three sectors for the whole of Delhi city.[52]

Average monthly earnings are provided by occupation and gender (Table 5-8). With the exception of two types of occupation (semi-professional work and daily labour), there is a striking difference in average wages between the genders, male workers earning twice as much as females at any given time of year. The gap is particularly high in manufacturing and service industries. Most females employed in manufacturing are engaged in relatively low-paid, home-based piecework, while 83.6% of their male

[52] As estimated using NSS 2007/08 Schedule 25.2, in Delhi, the percentages of workers from SCs engaged in construction (NCOs, 2004, code 931), transport (NCOs, 2004, code 933), and service industries (NCOs, 2004, codes 912–916) are 42.8%, 52.5% and 53.1% respectively.

counterparts are employed in factories or shops at better rates of pay. Females in service industries are mainly employed as maid servants, again at comparatively low rates, while their male counterparts are engaged in a variety of services.

Such job types may explain why female workers in service industries earn significantly less than their male counterparts in the same sector. The results of the survey support the view that female workers in the informal sector tend to be concentrated in low-paid occupations with weak bargaining power because their access to the labour market is limited to casual employment arrangements often within the sphere of their own residential areas (Mitra, 2003).

The earnings commanded by semi-professionals, such as social worker with an NGO, unqualified doctor, and so on (see Appendix 4 List B), are significantly higher than those of any other occupation in the sample. In contrast, daily labourers' wages are much lower than the remuneration for other occupations, although their hourly earnings – as calculated based on number of working days per month and hours worked per day – are not significantly lower than those of other jobs. This implies that daily labourers do not have as much guaranteed work as those in other types of employment.

The second most lucrative absolute rate of pay is commanded by entertainers, whose high level of income is maintained over peak months. However, their earnings also have the greatest fluctuation of all occupations throughout the year: male entertainers on average earn approximately 2.5 times more in their highest income month than they do in their lowest income month.

Interestingly, when it comes to rate of pay, the hourly or daily earnings of entertainers are by far the highest. For example, average hourly rates across professions in the month preceding the survey were INR 13.1 for all males, INR 24.6 for semi-professional males, and INR 136.4 for male entertainers. The same trend with regard to entertainers' earnings is found in both the highest and lowest income months: monthly earnings are not particularly high – engagements are seasonal and limited – but they are paid well when hired for a performance.

With the exception of these three occupations, income from jobs undertaken by slum dwellers in the sample does not seem to differ markedly. In respect of fluctuations in earnings, earnings in the highest income month are on average 1.4 times those in the lowest income month for both males and females. Yet, on the one hand, individuals engaged in service industries experience minor differences in income between the lowest and highest months. On the other hand, female workers engaged in jobs as daily labourers in construction face huge fluctuations, mainly due to the unavailability of work. Indeed, females seem to be generally disadvantaged in terms of earnings, suffering extremely large monthly income fluctuations in some occupations.

Finally, Table 5-8 suggests that the education level of sample workers in the semi-professional category is much higher than that of those in any other occupation group in this analysis. However, it is notable that the gender difference with regard to education level is smaller in this group. The second highest level of education is held by workers of both genders in manufacturing. The average number of years of education for male workers in this sector is five, which generally means completion of primary school. The average level of education in respect of all other occupational categories is below primary for both males and females. Interestingly, education levels amongst these occupation categories are lower than the average for non-workers of 4.8 years for males and 2.2 years for females respectively.

Table 5-8 Average monthly earnings by occupation and gender

	No. of observations		Average education (years)		Last month (INR)		Highest month (INR)		Lowest month (INR)	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Semi-professional	13	3	11.2	10.7	5,846.15	6,866.67	7,650.00	6,866.67	5,130.77	4,533.33
Daily labour	10	2	1.6	-	1,220.00	1,300.00	1,780.00	1,900.00	1,012.00	750.00
Technical and repairs	38	0	4.6	-	2,697.37	-	3,218.42	-	2,469.74	-
Entertainer	7	1	4.0	-	4,242.86	0.00	7,971.43	600.00	3,257.14	400.00
Construction	77	9	3.4	1.3	2,506.43	1,373.33	2,973.12	2,022.22	1,763.96	1,066.67
Manufacturing	117	32	5.0	2.1	2,712.24	998.13	3,074.36	1,140.63	2,327.35	863.13
Transport	78	0	3.2	-	2,727.63	-	3,182.90	-	2,271.05	-
Sales and trade	142	27	4.0	1.5	2,434.37	1,598.15	2,715.14	1,735.19	1,898.94	1,235.19
Services	105	60	3.4	0.7	2,564.29	1,090.00	2,632.86	1,193.33	2,354.76	1,002.50
Total	587	134	4.1	1.6	2,655.27	1,314.29	3,054.90	1,486.79	2,209.17	1,086.93

Notes: Monthly employment data for one male in the manufacturing sector are unavailable. The total includes three males and four females whose occupation categories are unknown.

Source: The author's survey.

5.4.4. Linkages between Education and Labour Market Outcomes

The literature suggests that linkages between education and earnings among informal workers and the self-employed in developing countries are under-researched (Glewwe, 2002). Thus, the analysis in this section contributes to the existing literature.

Wages earned by males and females are estimated separately. Dependent variables comprise the natural logarithms of monthly earnings at the time of the survey. Due to income fluctuations throughout the year, monthly income is ideally calculated based on a percentage of annual earnings. However, as it is not possible to calculate annual income precisely, current monthly earnings at the time of the survey are used. It should be noted that the rate for any given return to schooling calculation will be higher in terms of monthly earnings than daily or hourly earnings (Card, 1999). However, as previously discussed, for some individuals such as entertainers, the hourly rate of pay tends to be higher than that for other occupations although earning opportunities are limited. Informality of employment or unavailability of work is better reflected in monthly earnings, data on which are also easily obtainable with regard to salaried/regular waged workers since they are often paid monthly. Thus, monthly earnings, including self-reported net monthly income for the self-employed, are used in the analysis.

Table 5-9 shows the variables for the analysis of education and earnings. Education-related variables comprise length of schooling in years, the square of years of education, and the following indicators of education level: attainment below the primary level (base category), completion of primary school, completion of middle school, and completion of secondary school and above. Education levels are employed to examine the ‘sheepskin effect’ manifested by the wage premium of the final year of each

education level completed.[53] Thus, both human capital theory and screening theory are tested in this section.

Table 5-9 Variable descriptive statistics

	Male		Female		All	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Natural log of monthly income	7.64	1.15	6.40	1.88	7.40	1.41
Work (years)	16.31	11.06	10.86	9.09	15.26	10.92
Work (years) squared	388.13	432.03	199.97	323.01	351.65	419.59
Education (years)	4.10	3.90	1.49	3.02	3.59	3.89
Education (years) squared	31.99	42.48	11.29	35.54	27.94	42.00
Illiterate and below primary	0.46	0.50	0.79	0.41	0.53	0.50
Primary school	0.24	0.43	0.12	0.33	0.22	0.41
Middle school	0.15	0.36	0.02	0.33	0.13	0.28
Secondary school and above	0.08	0.28	0.03	0.17	0.07	0.26
No. of observations	553		133		686	

Notes: 'Illiterate and below primary' is the base category. Education status data for five males and one female are missing.

Length of employment history is calculated based on the difference between the year an individual started work and that of the survey (2007/08). This may be preferable to using age, or current age minus school-leaving age, because slum dwellers were found not to start to work immediately after leaving school. In the sample, the difference between school-leaving age and that of starting work – excluding those who have never attended school – is 5.6 years for males and 9.9 years for females; while the average age at starting a first job is 16.7 years for never-attended males and 25.7 years for never-attended females.

However, if an individual has gaps in his or her employment history for any reason – e.g. migration, maternity leave, child rearing – this is not reflected in the calculation due to the unavailability of data. Such gaps also tend to reduce the number of years in work disproportionately for those who are relatively more highly educated. However, the

[53] Qualification plays an important role in indicating educational attainment rather than years of schooling per se. For details of the sheep skin effect, see Brown and Sessions (2004).

proportion of highly educated sample slum dwellers is much smaller than that of those with lower levels of education. The results should thus be considered in light of this limitation.

As a baseline estimate, tables 5-10 and 5-11 show a standard Mincerian wage equation by ordinary least squares (OLS) regression that controls for the education and labour market experiences of males and females separately (Equations 1, 3 and 5). The labour market is more likely to reward the educational attainment of women rather than men, as exemplified by the marginal rates of return to one extra year's schooling of 12.0% and 4.7% respectively (Equation 1). Although higher rates of return to females' education are consistent with international findings (see Psacharopoulos, 1994; Psacharopoulos and Patrinos, 2002), the results of the present study are not corroborated by the conclusions of previous research on India (e.g. Duraisamy, 1988; Malathy, 1989; Kingdon, 1996). This may be attributable to the fact that fewer adult female slum dwellers have been educated, and shows that even limited education has an impact on earnings.

Sample selection bias arises from the possibility that workers might not be a randomly drawn from the slum population. Therefore a two-step Heckman selection model is employed for estimation using the inverse Mills ratio computed from the probit estimates in Table 5-7. The results are shown in Tables 5-10 and 5-11 (Equations 2, 5 and 7). The sample bias correction term – the inverse Mills ratio – has large coefficients that are statistically significant in both male and female subsamples. The inclusion of such a term tends to slightly increase the returns to both male and female education, which suggests that the OLS regression underestimates the returns. The return to

education is further increased for females and males (13.3% and 5.1% respectively).[54]

An attempt is also made to treat education as an endogenous variable. Earnings may have an effect on schooling, the result of which leads to the higher rates of return shown in tables 5-10 and 5-11. Endogeneity in terms of length of schooling is treated with the instrumental variables of age, age squared, father's education (in years), father's occupation, OBC, SC/ST, Muslim, rural, and urban slum variables, based on the estimates in Table 5-5. Woodridge (2002) suggests that the inverse Mills ratio is obtained using probit regression with instruments as explanatory variables. Accordingly, an instrumental variable estimate is conducted with years of schooling as an endogenous variable, and the inverse Mills ratio added to the set of instrumental variables.

The results are shown in Equation (3) in tables 5-10 and 5-11. The rate of return to education is estimated to be 4.4% for males and 13.0% for females. The rate of return to females' education turns out to be statistically insignificant. Although these figures are slightly lower than those in the OLS regression (Equations 1 and 2), the result confirms that education is economically more rewarding for females than males. However, when the assumed linear relationship between education and earnings is relaxed (equations 4 and 5 in tables 5-10 and 5-11 respectively), male earnings rise with years of education, but by a decreasing ratio at higher education levels.

With regard to the likelihood of a 'sheepskin effect' (equations 6 and 7 in tables 5-10

[54] The existing literature suggests that the return to education tends to be lower in poorer households and communities (Knight et al., 2010). Since the present study uses monthly income, returns tend to be higher than hourly rates or daily wages. Yet, the male return is much lower than other analyses employing an hourly rate (10.6%) (Kingdon, 1998) or daily wages (7.8% in the states of Tamil Nadu and Madhya Pradesh) (Kingdon and Unni, 2001).

and 5-11), coefficients generally rise with education level and are statistically significant in all cases in the male subsample, while none of the coefficients are significant in the female subsample. These results suggest that there is no significant difference in women's earnings with regard to any given level of educational attainment. This may be attributable to the fact that female workers, particularly heads of households, tend to take any available work when they have no choice but to find a job.

Interestingly, when two more education level variables are employed to gauge literacy – 'literate without formal schooling' (1 if a slum dweller is literate without having attended any education institution and 0 otherwise) and 'below primary schooling' (1 if a slum dweller has attended but not completed primary school, and 0 otherwise) – are added as explanatory variables to equation (7) for each subsample, both are insignificant for males (equation 8 in Table 5-10). This result suggests that there is no significant difference in earnings between the illiterate and those who have a little education (those who are literate without formal schooling and those who have attended but not completed primary school). It seems that a lower education level exacts an entry price to the labour market. Such a conclusion diverges from the universal proportionate increase in earnings in international findings (e.g. Banerjee and Duflo, 2011). Some slum dwellers who had attended but not completed primary school confirmed that there was either no effect or a slight negative effect on earnings as follows:

> I am not educated enough to get anything (Ravinder – educated up to 3rd grade – currently auto-rickshaw driver).
>
> I studied up to 4th class. There is no advantage from education in my life (Trilok – plumber).
>
> There is no advantage of education at all. I am selling vegetables on road (Faisal – educated up to 4th grade).

However, when it comes to the female subsample, both ‘literate without formal schooling’ and ‘below primary school dummies’ prove to be positive with statistical significance (Equation 8 in Table 5-11). Given that 69.9% of the sample of working females were illiterate and most of them could only find jobs that required very basic educational attainment, it may be concluded that in terms of earnings, a lower level of education does make any difference to such women.

Quality of education might be a significant determinant of earnings. This is examined by adding a private schooling dummy (1 if an individual has ever attended a non-state education provider and 0 otherwise) to the equations in tables 5-10 and 5-11. Nevertheless, the coefficient is statistically insignificant in all equations. This indicates that private education is not necessarily of a higher quality than government schooling, or has any greater labour market value. There could be a difference in quality of education in terms of geographical area. However, when the location of a slum dweller’s upbringing is added – i.e. rural and urban slum compared with urban non-slum – in place of the private schooling dummy, these coefficients are not significant either (results not shown for brevity).

Yet, when the non-migration dummy is added to the equations in tables 5-10 and 5-11 based on the assumption that schooling in Delhi might offer a better quality of education than any other region of the country, the coefficient in respect of the male subsample proves to be negative with statistical significance. Furthermore, when the non-migrant dummy variable is replaced by those representing the criteria ‘raised in a slum area of Delhi’ (interaction terms: ‘slum’ and ‘non-migrant’) and ‘raised in a non-slum area of Delhi’ (interaction terms: ‘urban non-slum’ and ‘non-migrant’), only the former is

negative with statistical significance. Thus, in general, private schooling does not seem to have a major impact on earnings. However, it is likely that males who were raised in slum areas of Delhi have a negative impact on the labour market.

When employment formality is analysed by adding to the equations the dummy variables paid leave (1 if an individual is entitled to paid leave and 0 otherwise) and pension (1 if an individual qualifies for a pension and 0 otherwise) in the male subsample,[55] as expected, both are positive with statistical significance in all equations (results not shown for brevity). This result clearly indicates that formal employment tends to provide higher earnings.

[55] Analysis of these variables in the female subsample was not conducted as numbers of women entitled to paid leave and pension were negligible (two and one respectively).

Table 5-10 Mincerian wage regressions for males

	Male							
	Eq (1)	Eq (2)	Eq (3)	Eq (4)	Eq (5)	Eq (6)	Eq (7)	Eq (8)
Education (years)	0.0474 ***	0.0510 ***	0.0438 *	0.0908 ***	0.1085 ***			
	(0.0126)	(0.0124)	(0.0288)	(0.0342)	(0.0336)			
Education squared				-0.0042	-0.0056 *			
				(0.0031)	(0.0030)			
Just literate								0.1689
								(0.1175)
Below primary school								-0.0577
								(0.1870)
Primary school						0.2195 *	0.3524 ***	0.3540 ***
						(0.1202)	(0.1124)	(0.1232)
Middle school						0.4029 ***	0.3842 ***	0.3868 ***
						(0.1404)	(0.1308)	(0.1423)
Secondary school and above						0.5638 ***	0.7966 ***	0.7860 ***
						(0.1787)	(0.1729)	(0.1130)
Work (years)	0.0684 ***	0.0261	0.0188	0.0677 ***	0.0224	0.0665 ***	-0.0310	-0.0301
	(0.0137)	(0.0204)	(0.0194)	(0.0137)	(0.0204)	(0.0137)	(0.0197)	(0.0263)
Work (years) squared	-0.0016 ***	-0.0006	-0.0005	-0.0015 ***	-0.0005	-0.0016 ***	0.0009 *	0.0009
	(0.0004)	(0.0005)	(0.0005)	(0.0004)	(0.0005)	(0.0003)	(0.0005)	(0.0006)
Sample bias correction term		0.2260 ***	-0.9891 **		0.2398 ***		-1.2860 ***	-1.2783 **
		(0.0936)	(0.3114)		(0.0937)		(0.3036)	(0.5053)
Constant	6.9498 ***	6.7358 ***	7.5168 ***	6.8983 ***	6.6563 ***	7.0031 ***	7.8007 ***	7.7962 ***
	(0.1315)	(0.1714)	(0.2301)	(0.1368)	(0.1763)	(0.1293)	(0.1949)	(0.2319)
Estimation method	OLS	OLS	2SLS	OLS	OLS	OLS	OLS	OLS
Adjusted R^2	0.0586	0.0642	0.0715	0.0601	0.0684	0.0573	0.0830	0.0955
No. of observations	547	530	530	547	530	550	532	532

Notes: ***, ** and * indicate significance at 1%, 5% and 10% respectively. Two-stage least square (2SLS) utilise age, age squared, father's education (in years), father's occupation, OBC, SC/ST, Muslim, urban slum, and rural variables (see Table 5-5). Figures in parentheses indicate robust standard errors. Sample bias correction terms in Equation 8 are calculated by adding the literate and below primary variables to the probit estimate in Equation 1 in Table 5-7.

Table 5-11 Mincerian wage regressions for females

	Female							
	Eq (1)	Eq (2)	Eq (3)	Eq (4)	Eq (5)	Eq (6)	Eq (7)	Eq (8)
Education (years)	0.1199 **	0.1330 **	0.1298	0.0698	0.0956			
	(0.0544)	(0.0549)	(0.0868)	(0.1238)	(0.1263)			
Education squared				0.0047	0.0035			
				(0.0105)	(0.0106)			
Just literate								0.9700 **
								(0.3850)
Below primary school								0.8132 **
								(0.3670)
Primary school						0.3752	0.6129	0.7353 *
						(0.5171)	(0.5401)	(0.4016)
Middle school						0.8425	1.1725	1.2789 **
						(1.3803)	(1.3878)	(0.6414)
Secondary school and above						1.1485	0.6009	0.6320
						(0.9697)	(1.1204)	(0.6543)
Work (years)	0.0263	0.0103	0.0098	0.0249	0.0092	0.0203	0.0029	0.0098
	(0.0498)	(0.0505)	(0.0515)	(0.0501)	(0.0508)	(0.0512)	(0.0521)	(0.0593)
Work (years) squared	-0.0002	0.0002	0.0002	-0.0002	0.0002	0.0000	0.0004	0.0004
	(0.0014)	(0.0014)	(0.0014)	(0.0014)	(0.0014)	(0.0014)	(0.0014)	(0.0014)
Sample bias correction term		-0.7780 **	-0.7593 **		-0.7772 **		-0.8379 **	-0.6666 ***
		(0.3890)	(0.3875)		(0.3905)		(0.4211)	(0.3865)
Constant	5.9627 ***	6.8574 ***	6.9443 ***	6.0014 ***	6.8845 ***	6.0694 ***	7.0036 ***	6.6345 ***
	(0.3601)	(0.5837)	(0.6009)	(0.3713)	(0.5916)	(0.3714)	(0.6179)	(0.6793)
Estimation method	OLS	OLS	2SLS	OLS	OLS	OLS	OLS	OLS
Adjusted R^2	0.0212	0.0469	0.0468	0.0151	0.0399	0.00142	0.0034	0.0712
No. of observations	133	129	129	133	129	132	127	127

Notes: *Notes*: ***, ** and * indicate significance at 1%, 5% and 10% respectively. Two-stage least square (2SLS) utilise age, age squared, father's education (in years), father's occupation, OBC, SC/ST, Muslim, urban slum, and rural variables (see Table 5-5). Figures in parentheses indicate robust standard errors. Sample bias correction terms in Equation 8 are calculated by adding the literate and below primary variables to the probit estimate in Equation 1 in Table 5-7.

Earnings are also estimated by adding personal and household variables – such as caste, religion, family composition, migration status, and marital status – that are excluded from the above OLS regression in its use of the conventional explanatory variables education and employment. Explanatory variables thus include the following: all those for the analysis of paid employment (see Table 5-7) other than number of children aged 14 years and under – which is statistically insignificant in all earnings equations – as well as father's education level and the ratio for male household members, since the latter two affect the securing of paid employment but are not likely to affect earnings.

The results of the augmented earnings regression are given in Table 5-12. The incorporation of previously omitted variables results in a reduction in the rate of return to education. Accordingly, the rate of return from this estimate proves to be 3.3% for males and 5.6% for females. The female education coefficient is now insignificant but the rate is still higher for women. This result also implies that ignoring family background is substantially overestimated in the analysis of returns to education, and the present result confirms that earnings for males rise with years of education but fall by a decreasing ratio at the higher levels. Nevertheless, the analysis shows that both human capital theory and screening theory are applicable to sample male slum dwellers.

Analysis of the data in Table 5-12 suggests that prolonged illness adversely affects male earnings. However, it also shows that neither caste nor religion has a discriminatory effect on male slum dwellers in terms of earnings, given that there is no such inequity demonstrated in entry to the labour market (see Table 5-7). This finding is inconsistent with caste-based discrimination found in rates of pay in urban areas of India (Banerjee and Knight, 1985; Madheswaran and Attenwell, 2007), but is corroborated by the results of other studies on non-caste based discrimination in earnings in slum areas (Mitra,

2003) and unskilled manual jobs (Banerjee and Bucci, 1994).

However, females from lower castes – those of OBC origin in particular – are disadvantaged with regard to earnings in comparison to those from general castes. As kinship and neighbourhood networks play an important role for women, it is possible that lower caste females have limited access to even lower paid jobs in comparison to their general caste counterparts.

Table 5-12 Augmented Mincerian wage regressions

	Male			Female		
Education (years)	0.0328 **	0.0926 ***		0.0560	0.0983	
	(0.0135)	(0.0343)		(0.0809)	(0.1560)	
Education (years) squared		-0.0061 *			-0.0048	
		(0.0032)			(0.0152)	
Primary school			0.2373 **			0.4137
			(0.1208)			(0.6126)
Middle school			0.2862 **			0.5982
			(0.1423)			(1.4528)
Secondary school and above			0.3612 *			-0.7192
			(0.1997)			(1.3676)
Work (years)	0.0143	0.0098	0.0145	0.0136	0.0130	0.0157
	(0.0217)	(0.0218)	(0.0215)	(0.0515)	(0.0518)	(0.0530)
Work (years) squared	-0.0006	-0.0005	-0.0006	0.0001	0.0001	0.0001
	(0.0005)	(0.0005)	(0.0005)	(0.0014)	(0.0014)	(0.0014)
Married	0.2505	0.2594	0.2805	-0.5118	-0.5065	-0.6079
	(0.2466)	(0.2460)	(0.2355)	(0.6060)	(0.6088)	(0.6138)
OBC	0.0217	0.0135	0.0095	-1.0462 *	-1.0197 *	-0.9652
	(0.1627)	(0.1623)	(0.1621)	(0.5801)	(0.5886)	(0.5954)
SC/ST	0.1369	0.0936	0.1221	-0.2596	-0.2590	-0.2340
	(0.1488)	(0.1501)	(0.1508)	(0.5193)	(0.5216)	(0.5264)
Muslim	0.1144	0.0917	0.1172	-0.1198	-0.0928	-0.1478
	(0.1747)	(0.1747)	(0.1743)	(0.6897)	(0.6979)	(0.6945)
Migrant	0.1949	0.1993	0.1961	-0.3589	-0.3501	-0.4375
	(0.1225)	(0.1222)	(0.1204)	(0.3852)	(0.3879)	(0.3906)
Household head	0.1746	0.1882	0.1603	0.7351	0.6994	0.7514
	(0.1657)	(0.1654)	(0.1641)	(0.7851)	(0.7965)	(0.7937)
More than one week of illness	-0.6036 ***	-0.6136 ***	-0.6118 ***	0.0901	0.1075	0.0664
	(0.1930)	(0.1926)	(0.1917)	(0.5069)	(0.5121)	(0.5129)
Sample bias correction term	-0.2405	-0.2659	-0.1899	-0.2807	-0.3204	-0.3173
	(0.4706)	(0.4696)	(0.4629)	(0.6430)	(0.6578)	(0.6485)
Constant	6.8351 ***	6.8459 ***	6.8062 ***	7.7279 ***	7.7584 ***	7.9961 ***
	(0.4319)	(0.4308)	(0.4230)	(1.6277)	(1.6376)	(1.6070)
District dummy	Yes	Yes	Yes	Yes	Yes	Yes
Occupation dummy	Yes	Yes	Yes	Yes	Yes	Yes
No. of observations	530	530	534	129	129	128
Adjusted R^2	0.1045	0.1091	0.1053	0.1556	0.1482	0.1364

Notes: ***, ** and * indicate significance at 1%, 5% and 10% respectively. Figures in parentheses indicate robust standard errors.

Coefficients for migrants are insignificant. When the migrant dummy variable is

replaced by the two other variables, (1) ‘migrants who have relocated to Delhi within the previous ten years’; and (2) ‘migrants who relocated to Delhi more than ten years ago’, both remain insignificant in all estimates (results not shown for brevity). This suggests that no matter how newly arrived they might be, migrants are disadvantaged neither in terms of entry to the labour market (see Table 5-7) nor the earnings they can command, particularly in the case of males.

Finally, the marginal rate of return to each level of education is estimated using the results of an OLS regression both with and without sample bias correction terms (tables 5-10 and 5-11), and the results of the augmented Mincerian estimates (Table 5-12). As discussed in Section 5.3.1, the Indian education system differs from state to state. In this section, the system of five years of primary school, three years of middle school, and seven years of secondary school and above (two years of secondary school + two years of higher secondary school + three years of tertiary education) is adopted, as such a convention is consistent with most of the existing literature on Indian education (e.g. Duraisamy, 2002; Dutta, 2006). Therefore, these durations are entered into calculations in estimating the return to various education levels.

The results are shown in Table 5-13. It was found that the marginal rate of return to education fluctuates. This is similar to the findings of a previous study on casual labourers (Dutta, 2006). It seems that there is no significant difference in female earnings in respect of education level in most cases; meaning that education does not play an important role in female earnings in most cases. This may be associated with the fact that when women – particularly female heads of household – have no choice but to work and take whatever job is available as we have discussed before. In the male subsample, estimates show that secondary education and above similarly do not yield a

higher return. This implies that there is low demand for skills acquired from the higher levels of education in the informal urban labour market or higher level of education is not useful in the informal urban labour market. In fact, there were slum dwellers who were educated above secondary level but ended up with low-paid jobs. For example:

> After being educated, I end up with drilling work (Prakash –senior secondary school dropout).
>
> In spite of 10th pass, I could not get a proper job (Subodh – home security guard).
>
> I pull a cart (Dheeraj Mohan – graduate somewhat disappointed with his education, none of whose five children attended school).

Table 5-13 Estimated marginal rates of return to various levels of education

Education level	Male	Female
Mincerian regression without sample bias correction terms (based on Equations 6 in tables 5-10 and 5-11)		
Primary school	4.39 *	7.50
Middle school	6.12 *	15.58
Secondary school and above	2.30 *	4.37
Mincerian regression with sample bias correction terms (based on Equations 7 in tables 5-10 and 5-11)		
Primary school	5.64 *	10.82
Middle school	4.08 *	9.56
Secondary school and above	1.74 *	8.52
Augmented Mincerian regression (based on Table 5-12)		
Primary school	4.75 *	8.27
Middle school	1.63 *	6.15
Secondary school and above	1.07 *	-18.82

Note: * indicates a value that significantly differs from zero.

However, rates of return to primary and middle schooling tend to be greater than those to secondary education and above; although this might simply reflect the fact that fewer sample slum dwellers completed the higher levels. Subject to this caveat, the result suggests that each additional year of education up to the completion of middle school

may be progressively beneficial in terms of increased wages, those of male slum dwellers in particular.

5.5. Analysis of the Value of Education in Poverty Alleviation for Illiterate people

As noted in Section 5.3, nearly half of the complete sample of slum dwellers was illiterate. Nevertheless, of this group, 87.3% of males and 25.4% of females had been engaged in some form of economic activity in the previous 12 months. In the econometric analysis in the previous sections, illiterate people – the overwhelmingly majority of whom had never attended school – are largely treated as a reference category, which does not provide any insightful information. Indeed, it remains unclear exactly what those slum dwellers who never attended school have actually experienced in their adult lives. Therefore, based on narrative responses to survey questions, this section addresses the value of education in terms other than income from the perspective of illiterate people.

Illiterate slum dwellers were asked, “What problems do you encounter in daily life through being unable to read and write?” Many respondents cited practical literacy-related obstacles. Specifically, the following activities were identified as highly problematic:

- Understanding traffic regulations
- Catching the right bus or train
- Completing various application forms
- Reading and writing letters and mobile phone text messages
- Telling the time
- Bargaining for and purchasing items at a fair price
- Understand official correspondence
- Helping children with their homework

The following examples of literacy-related problems in income-generating activities were also given:

> Sometimes, I measure weights wrongly, which means I make a loss (Mansoor – refuse collector and seller).

> When delivering goods, I have to ask the address and they are sometimes delivered to the wrong place (Mohan – rickshaw puller).

> The boss gives me short wages. I cannot say anything because he is educated. What can I say to him? He will prove me wrong because I am illiterate. If I ask how to get to a job, some people tell me the address and others insult me (Kamal – building labourer).

The existing literature suggests that poor people tend to value literacy more than education per se (e.g. Narayan et al., 2000; Bhatt, 2006). However, it is not really clear why this should be so. The aforementioned responses at least partially explain why literacy is appreciated more highly than other aspects of schooling: an inability to read and write makes a direct negative impact on people's daily lives and work; invariably, illiterate people can neither voice their own opinions nor object to those of others, even if they are quite well aware that they are exploited many times every day.

Importantly, a more fundamental and underlying effect of the non-monetary implications of education seems to be a psychological one from the point of view of illiterate people. In fact, a large number of slum dwellers indicated that they felt a lack of self-esteem in being unable to read and write. For example:

> I regard myself as small (Praveen – labourer).

> I cannot talk to the educated face to face or look them in the eye (Devraj – labourer).

> It is shameful to sit among educated people (Kumar Pal – wood carrying labourer).
>
> I feel ashamed when I have to put my thumbprint on a document (Harilal – restaurant cook).
>
> I feel ashamed that I cannot even go if the children's teacher asks us to go to their school (Lalita – mother of two school-going children).
>
> It is shameful because my husband makes all the decisions by himself (Shaleen – housewife).
>
> I do not dare ask the educated anything (Babu Ram – mason).
>
> In today's world, only educated people can survive. The uneducated are exploited in life (Tabu – vegetable vender).
>
> Nobody listens to the uneducated; everybody admires the educated (Deep – hotel housekeeper).

It is clear from the above quotations that being educated – or at least possessing basic skills such as literacy and numeracy – is perceived as bestowing upon one the self-esteem necessary to make a living. Illiteracy leads to a lack of participation in the public sphere, since those who are unable to read or write are overwhelmed by their own sense of inferiority. Conversely, basic skills equip the individual with the confidence to do many things. In this regard, education has significant intrinsic value in enhancing self-respect in the post-schooling lives of slum dwellers.

5.6. Conclusion

This chapter has examined the relationship between education and poverty at an individual level. The overall schooling of sample slum dwellers aged 15 and above who were not currently attending any education institution was found to be comparatively

low. Approximately half of the adult slum dwellers under study had never attended school. In particular, women and members of the older generation were more likely to be uneducated. Younger general caste males whose fathers were educated and employed in a ‘good’ occupation were more likely to be better educated. Negative parental perceptions of education and financial constraints emerged as the main reasons why individuals had never attended school or had withdrawn early. While parental attitude was found to have changed over the generations, financial constraints remained a challenge to the current generation of slum children (see Chapter 7).

Sample slum dwellers’ jobs were characterised by informality and instability. Very few of those in work were entitled to paid leave or had a pension scheme. Nevertheless, the correlation between schooling and participation in paid employment was found to be complex, the less educated being more likely to have a job than the relatively highly educated.

The relationship between education and earnings showed that additional years of schooling increased income, particularly for male sample slum dwellers. However, the rise in earnings together with a decreasing ratio at the higher levels of education and completion of secondary school and above was not found to be as rewarding in respect of informal employment as primary or middle school graduation. Therefore, the widespread contention of the existing literature that the early years of schooling yield low returns and, in India, only further education at the highest levels brings larger gains does not apply to the sample slum population.

The finding that education had an insignificant effect on the earnings of female sample slum dwellers does not imply that girls’ schooling should be neglected. In fact, it

emerged that the labour market was more likely to reward the educational attainment of females than males – although female subsample coefficients are largely insignificant. The analysis also showed that in contrast to the case for illiterate women, literacy and basic education below primary level had a significant positive effect on earnings. This means that basic literacy rather than the completion of schooling plays an important role in female earnings. It also implies that women are only able to obtain jobs that require very basic schooling even if they are relatively highly educated.

Since quite a few sample slum dwellers were either unable to read and write at all or only had a little schooling at best, the chapter also considered the effects of education on wider aspects of poverty among illiterate people. The existing literature tends to focus on the importance on literacy vis-à-vis schooling (Narayan et al., 2000; Bhatt, 2006). This chapter confirmed that illiterate people emphasise the inability to read and write as opposed to a lack of education per se due to the immediate impact of the former on their daily lives.

Finally, the psychological effects of illiteracy were also found amongst sample slum dwellers, a large proportion of whom suffered from a resultant inferiority complex. Conversely, it emerged that education was valued not only because it enhanced income-generating opportunities and earnings, but also because it meant a better quality of life, particularly in terms of the promotion of confidence in the public sphere.

Chapter 6 Education and Multidimensional Poverty at Household Level

6.1. Introduction

This chapter examines the correlation between education and multidimensional poverty at the household level. Although it is well known that there can be intrahousehold differences in the level of poverty (e.g. Hadadd et al., 1997), the unit of analysis in this chapter is the household. A household is basic unit in which consumption, economic production, child rearing, inheritance, and so on are organised, and various decisions, such as the maximisation of income, and whether or not to migrate, are made. It is also a conventional unit of poverty analysis and frequently used to analyse deprivation in India (Government of India, 1993; 2009a; 2012).

The structure of the chapter is as follows. Section 6.2 profiles sample slum households. Section 6.3 examines the relationship between education and monetary poverty. Section 6.4 investigates the correlation between education, and basic needs and capabilities. Section 6.5 discusses the relationship between education and subjective wellbeing. The findings of the chapter are summarised in Section 6.6. It should be emphasised that education and poverty are interrelated concepts, and that there is in all likelihood causality from education to monetary poverty as well as reverse causality from monetary poverty to education. However, this chapter examines the correlation between education and poverty rather than the causality from one to the other

6.2. Profile of Households

The sample in this study comprises a total of 417 households located in 50 slum clusters. Table 6-1 shows the socio-economic characteristics of slum households in comparison to those in Delhi as a whole. Muslim and non-Muslim lower castes – such as Other

Backward Classes (OBCs), Scheduled Castes (SCs), and Scheduled Tribes (STs) – tend to be more highly concentrated in slums. The size of sample slum households tends to be larger than that of those in the city as a whole, while mean household monthly per capita consumer expenditure (MPCE) in slums is much lower. Consequently, the incidence of poverty – defined as the percentage of the population below the poverty line in terms of MPCE – is much higher in the slum households under study (75.3%).

The number of households subsisting below the poverty line in the present study is also higher than that found by some other studies on Delhi slums (Mitra, 2003; Mitra and Tsujita, 2008). Since it can thus be inferred that poverty in urban areas has generally worsened over the period represented by these data (see Chapter 3 Section 3.2.2.), if we take into account the findings of the present subsequent study, it can only be concluded that the poverty incidence in slum areas has gradually but significantly increased over time.

The present study found that only 15.6 % of sample household heads were born in Delhi but that 84.4% had migrated to the city from various other parts of India and abroad. This migratory trend is reflected in the composition of slums. A large number of heads of household in the sample are migrants from less-developed regions of India, such as the former states of Uttar Pradesh (45.6%) and Bihar (17.7%). Since the 1990s in particular, it has become increasingly clear that migrant heads of household tend to have arrived in Delhi from a more limited number of regions of India, and most of those in the sample came from rural areas of the above two states. Notably, the incidence of poverty among migrant household heads in this sample is 75.0%, which is slightly lower than the 76.9 % of those who are non-migrants. Therefore, whether a household head is a migrant or not does not significantly affect monetary poverty, as discussed in

Section 6.3.

Reasons for relocation (multiple answers offered only to household heads) are mainly associated with the search for work or better employment prospects (61.6% of migrant household heads), followed by reunion with family members (22.4%). The average length of Delhi residence proves to be 23.8 years and the average age at migration is 20.7 years. Due to work-oriented relocation, 50.7% of migrant household heads whose spouse is also a migrant moved to Delhi alone or with other relatives, to be joined later by their spouse and other household members. The overwhelming majority of migrants had been joined by other family members, only seven households – including two headed by females – being single occupant ones.

Table 6-1 Household socio-economic background in 2007/08

	Delhi	Sample slum households
Number of households	3,188,626	417
Mean household size (persons)	3.96	5.34
	(2.08)	(1.84)
Mean MPCE (INR)	1,696.55	658.71
	(1,081.96)	(438.50)
Proportion of households below the poverty line (%)	9.20	75.30
Proportion of OBCs (%)	14.73	24.46
Proportion of SC/STs (%)	26.05	37.89
Proportion of Muslims (%)	12.77	21.34
Proportion of migrant heads of household (%)	N/A	84.41

Notes: Mean standard deviations are in parentheses. Disaggregated NSS data on the migratory status of household heads are unavailable.

Source: National Sample Survey 2007/08 Schedule 25.2 unit level data; the author's survey.

6.3. The Relationship between Education and Monetary Poverty

6.3.1. Expenditure Patterns

As discussed in detail in Chapter 2, household MPCE is used for determining the poverty line in India. In this section, the composition of MPCE is discussed before

formally analysing the relationship between education and monetary poverty. Table 6-2 provides a breakdown of mean MPCE of the households in the sample. It is clear that food is by far the largest expenditure item, followed by fuel, money spent on telephone facilities, family activities, and medical care.

Table 6-2 Breakdown of household MPCE

Variable	Mean (INR)	Std. Dev.	Min	Max	Proportion of MPCE (%)
Food	347.70	169.81	94.50	1,755.00	52.78
Non-food items	311.01	328.18	25.56	3,228.33	47.22
Fuel	56.71	29.78	0.00	210.00	8.61
Telephone facilities	30.19	57.15	0.00	750.00	4.58
Family activities	23.82	142.77	0.00	1,666.67	3.62
Medical expenses	20.75	37.07	0.00	500.00	3.15
Education	17.64	30.66	0.00	190.69	2.68
Out-remittance	17.05	97.58	0.00	1,250.00	2.59
Clothing	16.44	15.60	0.00	150.00	2.50
Rent	15.74	45.50	0.00	350.00	2.39
Festivals	15.72	16.47	0.00	104.17	2.39
Toiletries	14.69	10.64	0.00	100.00	2.23
Electricity	14.38	35.16	0.00	350.00	2.18
Entertainment	8.67	9.27	0.00	75.00	1.32
Transport	7.65	10.36	0.00	89.29	1.16
Public toilet charges	4.98	38.01	0.00	750.00	0.76
Footwear	4.15	4.90	0.00	41.67	0.63
House renovation	3.64	19.02	0.00	277.78	0.55
Consumer durables	3.49	13.78	0.00	114.83	0.53
Sundry items	3.09	3.98	0.00	55.56	0.47
Jewellery	3.01	19.37	0.00	277.78	0.46
Repayment of loans	2.98	19.50	0.00	277.78	0.45
Domestic repairs	1.72	4.68	0.00	59.72	0.26
Personal hygiene	1.58	3.47	0.00	54.17	0.24
Bedding	1.07	1.90	0.00	12.50	0.16
Books	0.86	4.63	0.00	77.08	0.13
Water	0.69	10.18	0.00	200.00	0.10
Deposit on house	0.25	5.10	0.00	104.17	0.04
Postage	0.14	0.91	0.00	8.33	0.02
Construction of toilet	0.07	1.36	0.00	27.78	0.01
Other expenditure	19.86	2.08	0.00	20.83	3.01
MPCE	658.71	438.50	124.92	4,068.33	100.00

Note: N = 417.

Source: The author's survey.

Food items comprise 52.8 % of surveyed household MPCE. According to the NSS (2006/07), this figure is much higher than that for urban Delhi as a whole (37.0%). At the time of the survey, wheat, rice, kerosene and sugar should have been available through the Delhi Public Distribution System (PDS).[56] However, in order to benefit from this service, consumers require a ration card that is issued by the Delhi government. Anecdotal evidence from the survey suggests that it is not always easy for slum dwellers to obtain or renew the card, hence the higher expenditure level found amongst this demographic.

During the survey, people quite often mistakenly assumed that we had come to the slum to help them fill in the application form for a ration card. Indeed, it was found that 22.5% of sample households did not possess a ration card; and that non-card holders were particularly prevalent amongst those in rented accommodation, which amounted to 28.8% of surveyed households. The proportion of households without a ration card could have been higher, since some of them used other families' cards illegally. It was also reported that 16.1% of households had received gifts of grain from family members, relatives or neighbours during the previous year.[57] Moreover, 44.5% of households were found to have obtained food on credit during the same period, regardless of whether or not they had ration cards.

The proportion of fuel expenditure is 8.6% of MPCE. Two hundred and sixty-four

[56] Department of Food and Supplies, Government of Delhi (accessed on 28 May 2008 from http://delhi.gov.in/wps/wcm/connect/DOIT_Food/food/home).

[57] However, it is not possible to take into account in the calculation of MPCE how much free grain and/or other substantial farming produce households receive, since the study was only able to gauge whether or not they had received any such produce during the 12 months preceding the survey.

households (63.3%) were found to have a cooker fuelled by liquid petroleum gas (LPG), while the *chulha* (traditional stove) was also still used for cooking, either solely or as a backup. The *chulha* comprises an open fire fuelled by wood, cow dung cakes, and so forth. According to a multiple choice questionnaire, the most common type of fuel for cooking is kerosene (291 households), which is used as an accelerant for the solid fuel burnt in the *chulha*. This is followed by LPG (264), wood (120), electricity (79), cow dung cakes (35), coal (16), and charcoal (1).

Telephone charges comprise 4.6% of MPCE. Only 3.4% of households had a landline telephone due to the complicated and expensive installation procedure, while 39.3% of households possessed at least one prepaid, comparatively cheap and accessible mobile phone.

Costs incurred by household events, including weddings, births, funerals, and other expenditure in relation to family ceremonies and activities were found to be substantial. In particular, the marriage of a daughter was very costly, as a dowry paid in cash or in kind (e.g. gold ornaments, bicycles, motorcycles, etc.) was expected by the groom's family. Such expenditure was normally unavoidable since arranged marriage was common practice. The highest cost of a daughter's wedding recorded by the study was INR 150,000,[58] which represented nearly a year's income for that particular household and nearly three years' expenditure in terms of the highest household MPCE in the sample.

Medical expenditure represents 3.2% of MPCE, the average healthcare cost being INR

[58] This amount represents approximately GBP 183.3 as of 2007 and GBP 187.8 as of 2008 at respective average annual exchange rates.

20.8 per capita per month. Of the 2,228 slum dwellers under study, only 11.9% had not received any medical treatment during the previous 12 months. The overwhelming majority saw a doctor at least once a year, and 8.4% of the sample had been debilitated for more than one week due to illness or injury. According to the multiple choice questionnaire, the most commonly accessed medical facility was the service of a private unqualified doctor (957 persons); followed by primary health care centre (923), government hospital (348), and charitable or non-governmental organisation (NGO) hospital (329). Only seven households were found to be covered by any form of medical insurance. This is why health expenditure is higher than other per capita outgoings.

The survey found that 11.0% of households currently had significant debts, that is, more than one month's household income regardless of income level. According to the multiple choice questionnaire, the most common causes of debt were medical care and marriage. Of those households that owed significant amounts, 73.9% had borrowed money from either relatives or friends. Although no interest was charged in the majority of cases, nearly half of those in debt doubted that they would ever be able to clear it.

The proportion of MPCE accounted for by remittance to relatives living in other parts of the country is 2.6% – the fact that only 51 households (14.5% of those whose head was a migrant) had actually dispatched such money in the previous 12 months notwithstanding. It is assumed that most slum dwellers cannot afford to send any money, or that those who migrated to Delhi a long time ago tend to weaken ties with their place of origin. Of those households that did send any money, the mean amount was 20.3% of MPCE. According to multiple choice questionnaire responses, the main purpose of the remittance was to meet everyday expenditure on items such as food, clothing, etc. (36 households); followed by children's education (18), and weddings (5).

Lastly, the mean proportion of MPCE dedicated to education is 2.7%, which is much less than the recorded 7.0% for urban Delhi as a whole (NSS, 2006/07). The present study found that 36.9% of households did not spend anything on education at all, which is by no means accounted for by the 25.2% of households that did not have any children of compulsory school age (education expenditure on such children of 5 to 14 years is examined in detail in Chapter 7). Indeed, it is likely that the remainder that did have children were simply unable to afford the cost of education.

Table 6-3 shows per capita monthly education expenditure across caste/religion, household head's migration status, and MPCE quintile groups. It clearly shows that those from higher social groups (general castes) and economic strata tend to spend more on education. Moreover, a household whose head is a native Delhiite tends to spend more on education than one whose head is a migrant.

Table 6-3 Household monthly per capita education expenditure (INR)

		No. of observations	Mean	Std. Dev.
Caste/religion	General	63	27.20	34.88
	OBC	102	13.60 *	30.61
	SC/ST	158	18.34	33.37
	Muslim	89	14.08 *	20.44
Household head	Migrant	352	16.74	29.13
	Non-migrant	65	22.48	37.82
MPCE quintile	Lowest	84	6.58	10.85
	Low	83	12.73	15.18
	Middle	84	12.86	15.55
	High	83	22.47 **	35.48
	Highest	83	33.73 ***	49.57
Total		417	17.64	30.66

Notes: Data are missing on caste/religion for five households. ***, ** and * indicate that difference from base categories (general caste, migrant, and lowest MPCE quintile) is statistically significant at 1%, 5% and 10% respectively.

Source: The author's survey.

6.3.2. Econometric Analysis of Education and Monetary Poverty

This section seeks to explain the correlation between education and monetary poverty through the use of econometric analysis. The dependent variable is household MPCE. Explanatory variables other than education-related ones were selected from the wide range available by means of ordinary least squares (OLS) regression. This process adopted the ‘stepwise method’ in a combination of forward and backward operations: at each stage, testing for the inclusion of variables through statistical significance (forward stepwise), and discarding them if they were statistically insignificant (backward stepwise) (Hair et al., 2006). Even if initially included, variables might later be dropped if they were no longer significant after others had been added.

In this method, the significance determining addition must constitute a lower p-value than that determining rejection (ibid.). Accordingly, a predictor variable with a p-value of 0.15 or more was set as a threshold for its removal from the existing model, and a predictor variable with a p-value of 0.10 or less was set as a threshold for its inclusion.

Table 6-4 gives details of all the explanatory variables considered for inclusion in the model by the stepwise method. Of all those in the list, only the following are significant: employment ratio, LPG, out-remittance, household size, asset index, house index, male ratio, debt, and microfinance. Some socio-economic characteristics such as membership of an underprivileged social group and migration status are not strongly associated with household MPCE.

Table 6-4 Definitions of explanatory variables

Variable	Definition	Mean	Std. Dev.
Employment ratio	Proportion of household members employed in previous 12 months	0.3606	0.2204
LPG	Household has access to LPG = 1; household does not have access to LPG = 0	0.6331	0.4825
Ration card	Household has ration card = 1; Household does not have ration card = 0	0.7746	0.4184
Ration card use	Household used ration card to purchase goods during previous 12 months = 1; household did not use ration card to purchase goods during previous 12 months = 0	0.7536	0.4314
Medical insurance	Household has medical insurance = 1; household does not have medical insurance = 0	0.0168	0.1286
Sickness	Proportion of household members debilitated by sickness for more than 7 days during previous 12 months	0.0887	0.1705
Outpatient	Proportion of household members attending a medical facility as an outpatient during previous 12 months	0.8777	0.2322
Ill-health	Proportion of household members reporting health has deteriorated or severely deteriorated during previous 12 months	0.0708	0.1520
Out-remittance	Household sent remittance home during previous 12 months = 1; household did not send remittance home during previous 12 months = 0	0.1223	0.3280
Household Size	Number of household members	5.3453	1.8386
Asset index	Weighted sum of the following items: car multiplied by 100 + washing machine multiplied by 75 + motorcycle multiplied by 50 + refrigerator multiplied by 25 + bicycle multiplied by 5 + mobile phone multiplied by 10 + bed multiplied by 5 + pressure cooker multiplied by 5 + TV multiplied by 5 + clock or wristwatch multiplied by 1 + electric fan multiplied by 1	30.6163	28.3581
House index	House size in square feet multiplied by the following: temporary materials (*kuchcha*) = 1; either roof or wall permanent materials (*semi*-pucca) = 2; permanent materials (pucca) = 3	219.1574	134.0067
Male ratio	Proportion of males in household	0.5710	0.1834
Female-headed household	Female head of household = 1; male head of household = 0	0.0360	0.1864
Proportion 15–57	Proportion of household members aged 15 to 57	0.9655	0.1175
Proportion 58 and over	Proportion of household members aged 58 and over	0.0342	0.1169
Number of children aged 5–14	Number of children aged 5 to 14	1.7242	1.3809
5–14 ratio	Proportion of household members aged 5 to 14	0.2986	0.2232
Savings	Household has savings = 1; household does not have any savings = 0	0.3789	0.4857
Debt	Household has significant debts (more than one month's income) = 1; household does not have significant debts = 0	0.1103	0.3137
Microfinance	Household participates in microfinance scheme, rotating savings group, or credit group = 1; household does not participate in any such scheme = 0	0.0911	0.2881
Slum development	Unweighted sum of the following: paved roads (household lives in slum where all internal roads are paved = 1; not all internal roads are paved = 0) + street lighting (household lives in slum where at least one street light functions = 1; no streetlight functions = 0) + spraying (household lives in slum where vector-control spraying has been provided during previous 12 months = 1; no spraying during previous 12 months = 0) + refuse collection (household lives in slum where refuse is collected = 1; household lives in slum where refuse is not collected = 0) + electricity (household lives in slum with legal electricity connection = 1; household lives in slum with no legal electricity connection = 0) + mobile health clinic (household lives in slum where government or private mobile health clinic has been available during previous 12 months = 1; no such health clinic = 0) + decision-making body (household lives in slum where decision-making body has been organised = 1; no such body = 0)	4.0144	1.7068
SC/ST	SC/ST = 1; non-SC/ST = 0	0.3986	0.4902
OBC	OBC =1; non-OBC = 0	0.3584	0.4801
Muslim	Muslim = 1; non-Muslim = 0	0.2134	0.4102
Household head born in Delhi	Household head born in Delhi = 1; household head not born in Delhi = 0	0.1559	0.3632

Source: The author's survey.

Note: N=417.

To understand sample slum dwellers' living conditions, I will describe some variables in detail. The average household size is 5.3 members. This implies that the majority of households consist of a nuclear family. When the mean employment ratio (0.36) is applied, on average, 1.9 members of each household are engaged in some kind of economic activity (5.3 × 0.36 = 1.9). It thus seems that the earnings of one member do not meet the living expenses of most households. In terms of savings, 37.9% of households have some money set aside. However, only 38 households (9.1% of the sample) participate in a microfinance enterprise, rotating savings scheme, or credit group.

The mean asset index score is 30.6. The most common consumer durable and other goods owned by sample households is an electric fan (94.5%); followed by a wristwatch or clock (91.8%), either a colour or black and white television (83.4%), and a pressure cooker (73.6%). At the higher end, only 0.7% of households own a car. Similarly, very few households have a washing machine (1.9%). The house index – based on the size and quality of the house – is 219.2 on average. Permanently built houses comprise 58.7% of dwellings, while only 1.7% of dwellings are built from temporary materials. The mean house size is 84.7 square feet (approximately 7.87 square meters).

After selection of explanatory variables by the stepwise method, education-related variables were added. Findings from the existing literature (Lokheed et al., 1980b; Lin, 1991; Foster and Rosenzweig, 1995; Yang, 1997; Jolliffe, 2002) on the effect of individual members' education on household wealth were taken into account in utilising the following criteria: (1) average years of education among household members aged 15 and above; (2) household head's years of education; (3) most highly educated member of the household; (4) proportions of household members having completed

primary school, middle school, secondary school, higher secondary school, and tertiary education (undergraduate and postgraduate) respectively; and (5) proportion of household members having completed at least primary education.

The household head's spouse's schooling was not used as an education variable, as it would have skewed the analysis owing to the fact that the sample was comparatively small (363 households); additionally, the spouse of some household heads still resided in the family's place origin, and others households were headed by females.

Table 6-5 shows the education variables. The average length of education among sample household heads is 3.4 years, while that of the most highly educated household member is 5.8 years. This implies that the level of education is generally higher among second-generation members. At the same time, it also indicates that the highest education level in slum households is on average the completion of primary school only. The average amount of education among household members aged 15 and above is 3.1 years. This low average level is mainly due to female members' generally inferior educational attainment. The proportion of household members having completed each subsequent level of education gradually decreases with each level. Thus, the proportion having completed primary school, middle school, secondary school, higher secondary school and tertiary education is 1.3%, 0.6%, 0.2%, 0.03%, and 0.04% respectively. The proportion of household members having completed at least primary education is 2.1%.

Table 6-5 Summary of descriptive statistics for education variables

Education variables	Mean	Std. Dev.	Min	Max
Average education (years)	3.1459	2.8335	0	13
Household head's education (years)	3.4173	4.0016	0	17
Most highly educated household member (years)	5.8345	3.6214	0	17
Proportion of household members who have completed primary school	0.0130	0.0167	0	0.1250
Proportion of household members who have completed middle school	0.0055	0.0125	0	0.1250
Proportion of household members who have completed secondary school	0.0021	0.0135	0	0.2500
Proportion of household members who have completed higher secondary school	0.0003	0.0020	0	0.0204
Proportion of household members who have completed tertiary education	0.0004	0.0022	0	0.0238
Proportion of household members who have completed at least primary school	0.0209	0.0285	0	0.3750

Note: N=417.

Source: The author's survey.

Since adding all explanatory variables – including education-related ones – to all models, the OLS estimates of the standard errors have been replaced by their robust standard estimates in order to overcome the problem of heteroscedasticity.[59] The results of this analysis are shown in Table 6-6. On the one hand, employment ratio, LPG, out-remittance, asset index, house index, debt, and microfinance participation all have a significant positive correlation with MPCE. However, on the other hand, household size has a significant negative correlation with MPCE.

[59] Heteroscedasticity is the probability of the disturbance term reaching a given positive or negative value being dissimilar across all observations.

Table 6-6 OLS estimations of household MPCE

Dependent variable = Household MPCE	Eq (1)	Eq (2)	Eq (3)	Eq (4)	Eq (5)
Employment ratio	240.3315 ***	247.1041 ***	253.3676 ***	237.1610 ***	211.6651 ***
	(3.45)	(3.50)	(3.57)	(3.40)	(2.99)
LPG	86.3617 ***	87.0222 ***	73.0613 ***	70.1033 ***	79.0190 ***
	(4.35)	(4.35)	(3.63)	(3.40)	(3.88)
Out-remittance	209.0983 ***	219.0681 ***	208.5376 ***	193.6200 ***	213.2313 ***
	(3.72)	(4.14)	(4.04)	(3.82)	(4.82)
Household size	-52.2040 ***	-52.7548 ***	-52.5144 ***	-51.7482 ***	-56.1632 ***
	(9.79)	(-9.65)	(-9.72)	(-9.41)	(-10.38)
Asset index	2.9630 ***	2.9230 ***	3.0037 ***	3.0891 ***	2.8494 ***
	(6.44)	(6.53)	(6.61)	(6.47)	(6.35)
House index	0.2204 ***	0.2033 ***	0.2074 **	0.2187 ***	0.2818 ***
	(2.69)	(2.64)	(2.53)	(2.81)	(3.78)
Male ratio	29.8840	39.4975	31.7679	47.5767	33.4937
	(0.56)	(0.74)	(0.58)	(0.88)	(0.63)
Debt	116.7777 ***	129.8195 ***	138.4844 ***	140.6701 ***	137.5430 ***
	(2.63)	(2.94)	(3.26)	(3.25)	(3.27)
Microfinance	78.4325 ***	80.1286 ***	71.2504 ***	90.0274 ***	78.7267 ***
	(2.98)	(3.09)	(2.68)	(3.19)	(3.42)
Average education	3.4434				
	(0.98)				
Household head's education		2.9769			
		(1.34)			
Most highly educated			6.0038 **		
			(2.18)		
Primary school ratio				-149.1244	
				(-0.29)	
Middle school ratio				64.2036	
				(0.09)	
Secondary school ratio				1700.9300 **	
				(2.23)	
Higher secondary school ratio				-3750.6940	
				(0.70)	
Tertiary education ratio				5200.5270	
				(0.63)	
At least primary school ratio					530.1053
					(1.41)
Constant	548.7678 ***	548.8213 ***	531.5793 ***	552.8942 ***	570.3100 ***
	(11.14)	(10.96)	(10.67)	(11.27)	(11.93)
Adjusted R^2	0.4310	0.4349	0.4373	0.4110	0.4607

Notes: N = 413. ***, **, and * indicate significance at 1%, 5% and 10% level. Figures in parentheses indicate t-ratios.

Most education coefficients are positive but statistically insignificant. An exception is the level of the household's most highly educated member, which, as it rises, is more likely to increase household economic wealth significantly. This suggests that there is a spill-over effect in terms of the influence of the most highly educated individual in the household on other members of the family, as corroborated by some of the existing literature (e.g. Lin, 1991; Jolliffe, 2002).

The household head's education level coefficient is also positive but statistically

insignificant. Since returns to primary and middle school education tend to be greater than those to secondary education and above, particularly in terms of males (see Chapter 5), sending children to school is likely to procure a longer education for children in the second generation than was the case for the household head – an average of 3.4 years, that is, below primary level.

Therefore, educating its children is economically advantageous to the household in this regard. Moreover, generally, the more household members who have completed post-primary education, the stronger the correlation with the household's economic wealth (although the coefficient representing the proportion of members who have completed at least primary education is statistically insignificant). In particular, the proportion of members who have completed secondary education has a significant positive correlation. It is also clear that the coefficient representing the proportion of household members having completed tertiary education is much larger than those associated with the lower levels; although, this coefficient is also statistically insignificant.

There is a gap between household income and expenditure; in fact, 37.9% of households have some savings. Mean MPCE (INR 658.7) ＋ mean monthly savings (INR 200.3) = INR 859.0, which is close to the mean household income of INR 887.5 in the month preceding the study. To test the robustness of the above analysis, the dependent variable MPCE is replaced by per capita monthly income in the previous month and MPCE in logarithmic form for the same period.

The results are shown in Table 6-7. Only education variables are presented, although all explanatory variables are included in the OLS regressions. When the dependent variable

is the MPCE logarithm, most of the non-education variables remain subject to the same sign. However, when income is designated as a dependent variable, the debt coefficient changes from positive to negative (not shown for brevity), although it is statistically insignificant. This implies that income does not meet necessary household expenses, a situation that can only lead to a substantial level of debt.

In terms of education, estimates of both the MPCE logarithm and income as a dependent variable show a greater statistical significance than those of MPCE as the dependent variable. The average education level, the household head's education level, and the level of the most highly educated household member are all positive and show a statistically significant correlation with both the income and MPCE logarithm. The proportion of household members who have completed at least primary school also shows a significant correlation with the MPCE in its logarithmic form. With regard to the distribution of various household members' education levels, all variables – other than the proportion of individuals who have completed primary school or higher secondary school – have a statistically significant positive correlation with income, while only the proportion of household members who have completed secondary school has a positive correlation with MPCE logarithm.

The existing literature on the role of education in monetary poverty in slum households examines the education level of the household head, showing that the higher it is, the less likely the household is to be below the poverty line (Swaminathan, 1997; Mitra and Tsujita, 2008). Nevertheless, this section of the present study found that not only the household head's education level, but also the average education level of the household, and the level of the most highly educated member of the household, played significant roles in reducing monetary poverty. Moreover, at household level, the correlation

between education – high level in particular – and income tends to be stronger than that between education and expenditure.

Table 6-7 Correlation between education and expenditure/income

Dependent variable = log household MPCE	Eq (1)	Eq (2)	Eq (3)	Eq (4)	Eq (5)
Average education	0.0132 **				
	(2.43)				
Household head's education		0.0089 ***			
		(2.58)			
Most highly educated			0.0152 ***		
			(3.42)		
Primary school ratio				0.1657	
				(0.19)	
Middle school ratio				0.9414	
				(0.79)	
Secondary school ratio				2.9706 ***	
				(3.89)	
Higher secondary school ratio				-1.4294	
				(-0.34)	
Tertiary education ratio				6.9269	
				(0.95)	
At least primary school ratio					1.7387 ***
					(5.87)

Dependent variable = per capita household monthly income	Eq (1)	Eq (2)	Eq (3)	Eq (4)	Eq (5)
Average education	17.5935 ***				
	(2.75)				
Household head's education		9.2768 **			
		(2.11)			
Most highly educated			10.7706 **		
			(2.30)		
Primary school ratio				-1239.9190	
				(-1.60)	
Middle school ratio				2874.8220 *	
				(1.91)	
Secondary school ratio				4596.9110 *	
				(1.71)	
Higher secondary school ratio				-14966.8200 *	
				(1.92)	
Tertiary education ratio				37987.2500 *	
				(1.67)	
At least primary school ratio					696.0924
					(0.90)

Notes: All explanatory variables in Table 6-6 are included but not individually shown. Figures in parentheses indicate t-ratios. N=413.

Since the overall level of education of slum dwellers tends to be low, it seems that even a few years of schooling is positively correlated with monetary poverty. The analysis also indicates that correlations between household level of education and income, and

household level of education and expenditure, are neither convex nor concave. This shows that earnings fluctuate with education level, but, generally, the greater the number of household members educated to higher levels, the wealthier the household is.

6.4. The relationship between Education and Basic Needs and Capabilities

Poverty is a multidimensional phenomenon that extends well beyond its monetary aspect (Sen, 1981; 1985; Haq, 1995; World Bank, 2001; Stewart et al., 2007). In this section, basic needs and capabilities – as defined in Chapter 2 – are examined in terms of the variables shown in Table 6-8. The wide range of variables associated with the basic needs and capabilities of slum dwellers has been delineated as follows: (1) access to safe water; (2) access to sanitation, including latrines and drainage; (3) health condition; (4) access to electricity; (5) food security; (6) political rights; (7) right to housing and the condition thereof; (8) access to credit and financial services; and (9) overall development of the slum in which a household resides.

Table 6-8 Definitions of variables

Variable	Definition	Mean	Std. Dev.
Water index 1	Availability of drinking water (hours) multiplied by household has private source = 2; household obtains drinking water from public source = 1	16.88	14.29
Water index 2	Degree of lack of sufficient drinking water (household frequently lacks water = 1; household sometimes lacks water = 2; household never lacks water = 3) multiplied by household has private source = 2; household obtains drinking water from public source = 1	2.25	1.50
Toilet	Household has private toilet = 1; household does not have private toilet = 0	0.08	0.28
Drainage	Household has drainage = 1; household does not have drainage = 0	0.88	0.33
Institutional birth	Proportion of household members born in any medical institution	0.11	0.20
Sickness	Proportion of household members not debilitated by sickness for more than 7 days during previous 12 months	0.91	0.17
Health	Proportion of household members reporting substantial improvement, improvement, or no change in health respectively in comparison to the previous 12 months	0.93	0.15
Medical insurance	Household has medical insurance = 1; household does not have medical insurance = 0	0.02	0.13
Electricity	No electricity = 0; household has access to neighbour's supply = 1; household has own illegal electricity connection = 2; household has own legal connection = 3	2.34	0.58
Ration card	Household has ration card = 1; household has no ration card = 0	0.77	0.42
Voter ID	Household has voter ID card = 1; household has no voter ID card = 0	0.80	0.40
Rented house	Household rents house = 1; household does not rent house = 0	0.13	0.34
Token	Household has token = 1; household does not have token = 0	0.41	0.49
Bank account	Household has account at bank or post office = 1; household does not have account at bank or post office = 0	0.17	0.38
Slum development	Unweighted sum of the following: paved roads (household lives in slum where all internal roads are paved = 1; not all internal roads are paved = 0) + street lighting (household lives in slum where at least one street light functions = 1; no streetlight functions = 0) + spraying (household lives in slum where vector-control spraying has been provided during previous 12 months = 1; no spraying during previous 12 months = 0) + refuse collection (household lives in slum where refuse is collected = 1; household lives in slum where refuse is not collected = 0) + electricity (household lives in slum with legal electricity connection = 1; household lives in slum with no legal electricity connection = 0) + mobile health clinic (household lives in slum where government or private mobile health clinic has been available during previous 12 months = 1; no such health clinic = 0) + decision-making body (household lives in slum where decision-making body has been organised = 1; no such body = 0)	4.01	1.71

Since these variables are heterogeneous, it is not easy to combine all of them into an

integrated basic needs and capabilities index. Therefore, factor analysis – more specifically, maximum likelihood factor analysis – was conducted. In this process, some variables were discarded in order to avoid the manifestation of 'Heywood cases'.[60] Variables were thus combined to generate a composite index of basic needs and capabilities (abbreviated in equations as BN/C) as follows:

$$\text{BN/C INDEX}\,(i) = \sum_{j=1}^{n} FLj\,(i)Xj$$

Where FL is the factor loading j=1…n corresponding to the number of variables, and *i* represents the *i*th significant factor.

In the second stage, composite indices generated on the basis of the factor loading for each of the significant factors (Eigen value is more than 1) were combined using the proportion of Eigen values as weights.

$$BN/C \quad INDEX = \sum_{i=1}^{k}\left[\frac{EV(i)}{\sum EV(i)}\right] \quad BN/C \quad INDEX\,(i) \qquad \text{k < n}$$

Where *i* ranges from 1 to *k*, the number of significant factors

Using varimax rotation in order to obtain statistically independent factors, the results of the analysis suggest four significant items (Table 6-9). These four factors together explain 87.9% of the variation. For factor 1 – the most dominant and that which explains 30.2% of the variation – possession of a ration card (0.92) and voter ID (0.82) have the highest loadings. Variables with moderate loadings for this factor include rented accommodation, which has a negative value (-0.58), and possession of a token[61] (0.36).

[60] A factor solution that produces an error variance estimate of less than zero (Hair et al., 2006).
[61] The tokens distributed during Prime Minister V. P. Singh's administration (1989–90) constitute formal proof of residence in a slum (Ghertner, 2010) – although they are sometimes traded on the black market – and confer the right to reside in the city, including the right to resettlement in the event of the demolition of the slum.

For factor 2, which explains 25.3% of the variation, there are two water access-related indicators: (1) the composite index of hours of water availability, and whether a household has access to safe drinking water from its own private source; and (2) degree of difficulty in obtaining water in the previous dry season. These two indices have the highest loadings (0.99 and 0.82 respectively).

For factor 3, there are two health-related variables: (1) the proportion of household members reporting either much better health, better health, or no change in comparison to 12 months ago and (2) the proportion of household members not debilitated by illness or injury for more than 7 consecutive days in the last 12 months. These two indices have the highest loadings (0.76 and 0.75 respectively).

For factor 4, plumbed drainage at home (0.71) and the slum development index (0.62) have the highest loadings; while an electricity supply via any kind of legal or illegal connection (0.31) has a modest loading.

Table 6-9 Factor analysis results

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Uniqueness
Water index 1	-0.0159	0.8203	-0.0033	-0.0667	-0.0205	-0.2122	0.2770
Water index 2	0.0182	0.9857	0.0025	0.0182	-0.0456	0.1027	0.0152
Toilet	0.1680	0.1490	0.0257	-0.0028	-0.0085	0.0848	0.9416
Drainage	0.2267	0.0680	-0.0135	0.7087	-0.0276	0.0992	0.4309
Sickness	0.0364	0.0675	0.7546	-0.0061	-0.0256	0.0230	0.4235
Health	-0.0173	-0.0628	0.7589	0.0753	0.0172	-0.0190	0.4136
Electricity	0.1382	-0.1351	0.0532	0.3114	0.3699	0.2794	0.6479
Ration card	0.9212	0.0339	0.0091	0.1345	0.0193	-0.0413	0.1299
Voter ID	0.8191	-0.0144	-0.0006	0.0831	0.1209	0.0680	0.3027
Rented house	-0.5822	0.0282	-0.0293	0.2225	-0.2126	-0.0839	0.5577
Token	0.3554	-0.1547	-0.0373	0.1055	0.5959	-0.0108	0.4820
Bank account	0.1388	0.1335	-0.0281	0.0993	0.2396	-0.0477	0.8925
Slum development	0.0504	-0.1495	0.1434	0.6221	0.2238	-0.1312	0.5002
Eigenvalue	2.1076	1.7643	1.1727	1.0923	0.6640	0.1846	-
Variance explanation	0.3017	0.2526	0.1679	0.1564	0.0950	0.0264	-
Cumulative variance	0.3017	0.5543	0.7222	0.8785	0.9736	1.0000	-

Table 6-10 shows the distribution of the basic needs and capabilities index. Variation within the same range of indices is apparently great. In particular, the lower the index group, the higher the variation. This implies that some households, particularly those who only achieve a low score in the index, face very limited access to basic needs and capabilities. Approximately 6.2% of households correspond to the lowest value, while 12.4% have the highest composite value. The second lowest group represents the largest percentage of sample households (41.1%), followed by the middle group of values between 5 and 7.5 (27.0%). It is notable that the correlation ratio of this index to MPCE is only 0.05. Thus, the basic needs and capabilities index clearly exhibits a different aspect of deprivation from monetary poverty.

Table 6-10 Distribution of households in the basic needs and capabilities index

Index	No. of households	Percentage	Coefficient of variation
≤ 2.5	25	6.19	0.1973
2.5 < index ≤ 5	166	41.09	0.1801
5 < index ≤ 7.5	109	26.98	0.1220
7.5 < index ≤ 10	54	13.37	0.0564
> 10	50	12.38	0.0571
Total	404	100	0.5740

This composite index shows that there is a non-linear correlation between average basic needs and capabilities, and different levels of education (Table 6-11). For example, the index for households with an average of more than 5 years of education (6.57) is close to that of those with an average of more than zero but less than 2.66 years (6.47) (Table 6-11-1). The index of those households in which no one has completed primary school (6.06) is slightly greater than that of the highest proportion of household members who have completed at least this level of education (6.04) (Table 6-11-4). Similarly, even if the household head or any other family member is educated to tertiary level, the basic needs and capability index is not necessarily higher than that of households whose head or most highly educated member is schooled to a level no higher than secondary (tables

Table 6-11 Distribution of basic household needs and capabilities by various education indicators

1. Average level of education (years)				
Level of Education	No. of households	Percentage	Average index	Index variation coefficient
0	110	27.23	5.89	0.5267
0 < index ≤ 2.66	87	21.53	6.47	0.5514
2.66 < index ≤ 5	116	28.71	5.41	0.5844
> 5	91	22.52	6.57	0.6099
Total	404	100	6.03	0.5740
2. Household head's education (years)				
Level of Education	No. of households	Percentage	Average index	Index variation coefficient
0	205	50.74	6.07	0.5692
1-5	80	19.80	5.99	0.6295
6-8	69	17.08	6.08	0.5327
9-10	33	8.17	5.62	0.5529
11-12	8	1.98	7.37	0.6086
13+	9	2.23	5.19	0.7067
3. Most highly educated household member (years)				
Level of Education	No. of households	Percentage	Average index	Index variation coefficient
0	63	15.59	5.82	0.4700
1-5	123	30.45	5.91	0.5704
6-8	131	32.43	6.04	0.5912
9-10	60	14.85	5.97	0.5987
11-12	14	3.47	8.05	0.5521
13+	13	3.22	6.14	0.7285
4. Proportion of household members who have completed at least primary school				
Level of Education	No. of households	Percentage	Average index	Index variation coefficient
0	126	31.19	6.06	0.5187
0 < index ≤ 0.015	57	14.11	6.12	0.6095
0.015 < index ≤ 0.02	52	12.87	5.83	0.6744
> 0.02	169	41.83	6.04	0.5746
5. Proportion of household members who have completed primary school				
Level of Education	No. of households	Percentage	Average index	Index variation coefficient
0	171	42.33	6.08	0.5479
0 < index ≤ 0.008	17	4.21	7.25	0.6007
0.008 < index ≤ 0.01	30	7.43	5.48	0.6942
> 0.01	186	46.04	5.96	0.5762
6. Proportion of household members who have completed middle school				
Level of Education	No. of households	Percentage	Average index	Index variation coefficient
0	279	69.06	6	0.5431
0 < index ≤ 0.008	15	3.71	7.92	0.5329
> 0.008	110	27.23	5.84	0.6489
7. Proportion of household members who have completed secondary education				
Level of Education	No. of households	Percentage	Average index	Index variation coefficient
0	359	88.86	5.90	0.5688
<0	45	11.14	7.04	0.5824
8. Proportion of household members who have completed higher secondary school				
Level of Education	No. of households	Percentage	Average index	Index variation coefficient
0	391	96.78	6.04	0.5710
<0	13	3.22	5.72	0.6906
9. Proportion of household members who have completed tertiary school				
Level of Education	No. of households	Percentage	Average index	Index variation coefficient
0	388	96.04	6.03	0.5696
<0	16	3.96	5.87	0.6975

Notes: N = 404. For the average education level, 2.66 is the median. For the proportion of household members who have completed at least primary school, 0.015 is the median and 0.02 the mean. For the proportion of household members who have completed primary school, 0.008 is the median and 0.01 the mean. For the proportion of household members who have completed middle school, 0.008 is the mean.

6-11-2 and 6-11-3). However, this might reflect the fact that very few heads or any other household members are highly educated.

Regressions of the composite basic needs and capabilities index on different levels of education reveal statistically insignificant t-ratios, which supports the hypothesis that there is no stable correlation between education level and this index.

Basic needs and capabilities Index = 6.04 – 0.01 average level of education
(23.49)***(-0.07) $R^2 = 0.0000$

Basic needs and capabilities Index = 6.10 – 0.02 household head's education
(26.98)*** (-0.51) $R^2 = 0.0006$

Basic needs and capabilities Index =5.73 + 0.05 highest level of education
(17.49)*** (1.07) $R^2 = 0.0028$

Basic needs and capabilities Index = 6.17 – 6.49 proportion of household members
(28.74)*** (-1.05) who have completed
at least primary school
$R^2 = 0.0028$

Basic needs and capabilities Index = 6.21 – 6.69 primary school ratio - 6.47 middle
(26.15)*** (-0.60) (-0.41)
school ratio + 1.54 secondary school ratio + 78.88 higher secondary ratio +
(-0.82) (-0.11)
64.12 tertiary education ratio $R^2 = 0.0064$
(-0.79)

Indeed, similar education levels amongst households do not necessarily mean consistent access to various needs and capabilities, and the study generally found no strong evidence of gains in basic needs and capability index associated with educational attainment per se.

Next, the basic needs and capabilities index was divided into five groups with the lowest being assigned a value of 1 and the highest 5, and an ordered probit regression conducted. The dependent variable was the basic needs and capabilities index (groups

1–5), and in order to ensure that the assessment was compatible with analyses of other concepts of poverty, the explanatory variables were the same as those utilised in regressions of other indices in this chapter. The results are given in Table 6-12.

The index value tends to rise significantly as the proportion of household members who have been employed during the previous 12 months increases. Other variables, such as LPG, out-remittance, household size, asset index, house index, and microfinance participation, also show a positive effect on the basic needs and capabilities index, although none of the coefficients are statistically significant, unlike their significant correlation with MPCE (Table 6-6).

The difference in correlation with regard to MPCE (Table 6-6) is the male ratio (although none of the coefficients are statistically significant). The index value tends to fall as the proportion of male household members rises. The value is clearly affected when migrant males live alone or male migrant relatives live together. It is assumed that such males might not bother accessing various basic amenities or facilities in Delhi if they regard themselves as temporary residents of the city, or nobody in the household has time to investigate better living conditions.

In terms of the correlation between education and non-monetary poverty, all education variables show negative signs but none of them are statistically significant. This implies that in contrast to the linkage between education and monetary poverty, education does not have a strong positive association with basic needs and capabilities. This indicates that slum dwellers' education does not readily lead to claims of various basic rights as citizens, and it may be the case that income is a more urgent necessity for the educated.

Table 6-12 Ordered probit estimations of basic needs and capabilities index

	Eq (1)	Eq (2)	Eq (3)	Eq (4)	Eq (5)
Employment ratio	0.5717 **	0.5514 **	0.5868 **	0.5671 **	0.6034 **
	(0.2743)	(0.2787)	(0.2742)	(0.2742)	(0.2734)
LPG	0.1410	0.1149	0.1235	0.1705	0.1334
	(0.1183)	(0.1163)	(0.1193)	(0.1203)	(0.1173)
Out-remittance	0.0418	0.0203	0.0044	0.0858	0.0218
	(0.1664)	(0.1668)	(0.1665)	(0.1729)	(0.1674)
Household size	0.0377	0.0361	0.0433	0.0506	0.0478
	(0.0336)	(0.0340)	(0.0340)	(0.0350)	(0.0339)
Asset index	0.0042	0.0039	0.0036	0.0041	0.0038
	(0.0032)	(0.0031)	(0.0031)	(0.0032)	(0.0032)
House index	0.0002	0.0002	0.0002	-0.0001	0.0000
	(0.0005)	(0.0005)	(0.0005)	(0.0005)	(0.0005)
Male ratio	-0.3930	-0.4101	-0.3963	-0.4215	-0.4232
	(0.3248)	(0.3225)	(0.3265)	(0.3281)	(0.3258)
Debt	-0.0018	-0.0125	-0.0141	-0.0025	0.0097
	(0.1633)	(0.1620)	(0.1615)	(0.1676)	(0.1647)
Microfinance	0.1191	0.1285	0.1178	0.1611	0.1249
	(0.2255)	(0.2244)	(0.2255)	(0.2268)	(0.2258)
Average education	-0.0324				
	(0.0209)				
Household head's education		-0.0148			
		(0.0142)			
Most highly educated			0.0101		
			(0.0164)		
Primary school ratio				-2.1489	
				(3.5128)	
Middle school ratio				-7.2012	
				(4.4116)	
Secondary education ratio				-0.0345	
				(2.0801)	
Higher secondary school ratio				-45.6863	
				(30.3174)	
Tertiary education ratio				-25.7722	
				(16.7753)	
At least primary school ratio					-2.7450
					(1.6690)
Pseudo R^2	0.0122	0.0112	0.0106	0.0157	0.0119

Notes: N = 400. ***, ** and * indicate significance at 1%, 5%, and 10% respectively. Figures in parentheses indicate robust standard errors.

6.5. Education and Subjective Wellbeing

6.5.1. Subjective Wellbeing

The concept of poverty extends far beyond objective deprivation, which encompasses the monetary aspect, and basic needs and capabilities, both of which are judged by outsiders (Stewart et al., 2007). The role of education in slum dwellers' subjective wellbeing is discussed in this section. The question is does education have a direct

relationship with subjective wellbeing, or is schooling indirectly associated with subjective wellbeing through other factors such as relative and absolute income. Moreover, if education has a correlation with subjective wellbeing – or has none – why is this so?

The survey questionnaire included several items associated with subjective wellbeing. The respondent was generally the household head, or, if they were not at home, their spouse. It should be noted that questions related to the household rather than the individual who answered them, although there might have been intrahousehold differences between members. However, it would have been practically difficult – or rather, impossible – to ask each member of every household all the questions as one or more of them was invariably not at home. The findings in this section are subject to this caveat.

The questions, “Do you think your household’s current living conditions are better than those of your parents?” and, “Do you think your household’s living conditions have improved compared with those of five years ago?” both required respondents to grade their answers according to a five-point Likert scale (‘strongly agree’, ‘agree’, ‘neither agree nor disagree’, ‘disagree’ or ‘strongly disagree’).

Table 6-13 shows a cross-tabulation of household MPCE quintiles and assessment of living conditions in comparison with the previous generation. The columns represent the five MPCE quintiles: (1) lowest, (2) low, (3) medium, (4) high, and (5) highest. The rows represent five categories of living conditions assessment in comparison with the previous generation: (1) extremely deteriorated, (2) deteriorated, (3) neither improved nor deteriorated, (4) improved, and (5) highly improved.

Similarly, Table 6-14 shows a cross-tabulation of household MPCE quintiles in the columns and categories of assessment of living conditions in comparison with five years previously in the rows. The scale on which living conditions are assessed in comparison with five years previously is the same as living conditions in comparison with the previous generation: (1) extremely deteriorated to (5) highly improved.

Overall, 39.4% of slum households indicate that living conditions remain much the same across generations (Table 6-13). At the same time, the higher MPCE quintiles tend to indicate that living conditions have improved in comparison with those of the previous generation. For example, 54.9% (45 households) in the highest MPCE quintile indicate that living conditions have either improved or highly improved in comparison with those of their parents. In contrast, only 13.3% of the lowest MPCE quintile (11 households) shows a similar perception.

Likewise, nearly half of the total sample (45.7%) indicates that living conditions have remained much the same over the last five years (Table 6-14). However, while 48.1% of the highest MPCE quintile (37 households) indicates that living conditions have improved or highly improved in comparison with those of five years previously, only 9.5% of the lowest MPCE quintile (8 households) shows a similar perception.

Although affluent households tend to indicate that living conditions have improved and those in monetary poverty that they have deteriorated, the association between MPCE quintile and subjective assessment of living conditions is not straightforward. The correlation ratio for this criterion in comparison with that of the previous generation proves to be only 0.27; and, similarly, that in comparison with the situation five years

previously is 0.31. It thus seems that slum dwellers do not believe that upward mobility is easily accomplished.

Table 6-13 Cross-tabulation of MPCE quintiles and categories of change in living conditions in comparison with those of the previous generation

	Comparison of living conditions with those of the previous generation					
MPCE quintile	**1**	**2**	**3**	**4**	**5**	**Total**
1	6	24	42	6	5	83
	7.23	28.92	50.60	7.23	6.02	100.00
	54.55	25.00	25.77	8.11	7.14	20.05
2	2	23	29	17	11	82
	2.44	28.05	35.37	20.73	13.41	100
	18.18	23.96	17.79	22.97	15.71	19.81
3	2	18	38	14	12	84
	2.38	21.43	45.24	16.67	14.29	100
	18.18	18.75	23.31	18.92	17.14	20.29
4	0	16	33	15	19	83
	0.00	19.28	39.76	18.07	22.89	100
	0.00	16.67	20.25	20.27	27.14	20.05
5	1	15	21	22	23	82
	1.22	18.29	25.61	26.83	28.05	100
	9.09	15.63	12.88	29.73	32.86	19.81
Total	11	96	163	74	70	414
	2.66	23.19	39.37	17.87	16.91	100
	100	100	100	100	100	100

Note: The value in each cell refers to frequency by percentage in terms of both rows and columns.

Source: The author's survey.

Table 6-14 Cross-tabulation of MPCE quintiles and categories of change in living conditions in comparison with those of five years previously

	Comparison of living conditions with those of five years previously					
MPCE quintile	**1**	**2**	**3**	**4**	**5**	**Total**
1	6	24	46	7	1	84
	7.14	28.57	54.76	8.33	1.19	100.00
	54.55	28.24	24.21	8.33	2.17	20.19
2	2	20	39	14	8	83
	2.41	24.10	46.99	16.87	9.64	100.00
	18.18	23.53	20.53	16.67	17.39	19.95
3	0	18	43	17	6	84
	0.00	21.43	51.19	20.24	7.14	100.00
	0.00	21.18	22.63	20.24	13.04	20.19
4	1	14	33	22	13	83
	1.20	16.87	39.76	26.51	15.66	100.00
	9.09	16.47	17.37	26.19	28.26	19.95
5	2	9	29	24	13	77
	2.60	11.69	37.66	31.17	16.88	100.00
	18.18	10.59	15.26	28.57	28.26	18.51
Total	11	85	190	84	46	416
	2.64	20.43	45.67	20.19	11.06	100.00
	100.00	100.00	100.00	100.00	100.00	100.00

Note: The value in each cell refers to frequency by percentage in terms of both rows and columns.

Source: The author's survey.

Next, households were asked to assess their relative wealth (Table 6-15). The question was, "In terms of this slum cluster, do you think your household is relatively very rich (scale 5), rich (scale 4), average (scale 3), poor (scale 2), or very poor (scale 1)?" 'Rich' was translated into Hindi in its monetary sense. No one assesses their household as 'very rich'. Overall, only 9.8% regard themselves as relatively rich, while more than half consider themselves to be either poor (44.1%) or very poor (12.2%). The correlation ratio in respect of MPCE and subjective assessment of relative wealth is higher (0.40) than that associated with MPCE and subjective assessment of intergenerational change, change over the last five years, and overall satisfaction – all of which are analysed in this section.

Table 6-15 Cross-tabulation of MPCE quintiles and categories of subjective assessment of relative wealth

MPCE quintile	Relative position					
	1	**2**	**3**	**4**	**5**	**Total**
1	28	36	17	3	0	84
	33.33	42.86	20.24	3.57	0.00	100.00
	54.90	19.57	12.06	7.32	0.00	20.14
2	13	42	27	1	0	82
	15.85	51.22	32.93	1.22	0.00	100.00
	25.49	22.83	19.15	2.44	0.00	19.66
3	4	50	25	5	0	83
	4.82	60.24	30.12	6.02	0.00	100.00
	7.84	27.17	17.73	12.20	0.00	19.90
4	3	32	32	16	0	83
	3.61	38.55	38.55	19.28	0.00	100.00
	5.88	17.39	22.70	39.02	0.00	19.90
5	3	24	40	16	0	83
	3.61	28.92	48.19	19.28	0.00	100.00
	5.88	13.04	28.37	39.02	0.00	19.90
Total	51	184	141	41	0	417
	12.23	44.12	33.81	9.83	0.00	100.00
	100.00	100.00	100.00	100.00	0.00	100.00

Note: The value in each cell refers to frequency by percentage in terms of both rows and columns.

Source: The author's survey.

Finally, the survey asked the following question: "Taking everything into account, how satisfied is this household with its present situation?" Answers were graded on the usual Likert scale: (1) very dissatisfied, (2) dissatisfied, (3) neither satisfied nor dissatisfied, (4) satisfied, and (5) very satisfied.[62]

The results are given in Table 6-16. The proportion of households that are neither satisfied nor dissatisfied is the highest (41.1%). The proportion of households that are dissatisfied (24.8%) or very dissatisfied (4.1%) is slightly lower (28.9% in total) than

[62] This ranking has been revised from the questionnaire, i.e. 1 in the questionnaire becomes 5 in the table, 2 in the questionnaire 4 in the table, and so on (see household questionnaire in Appendix 3).

that of those assessing themselves as satisfied (21.2%) or very satisfied (8.9%) (30.1% in total).

Again, the correlation ratio in respect of MPCE quintile and subjective wellbeing transpires to be low: only 0.27. When the sample is confined to households above the poverty line (103 monetarily non-poor households), the correlation ratio drops even further to a negative value (-0.13). It may thus be concluded that relatively wealthier households tend to be dissatisfied with their lives.

Table 6-16 Cross-tabulation of MPCE quintiles and categories of subjective wellbeing

	Subjective wellbeing					
MPCE quintile	**1**	**2**	**3**	**4**	**5**	**Total**
1	6	28	34	15	1	84
	7.14	33.33	40.48	17.86	1.19	100
	35.29	27.18	19.88	17.05	2.7	20.19
2	6	26	35	11	4	82
	7.32	31.71	42.68	13.41	4.88	100
	35.29	25.24	20.47	12.5	10.81	19.71
3	0	18	44	18	4	84
	0	21.43	52.38	21.43	4.76	100
	0	17.48	25.73	20.45	10.81	20.19
4	1	16	33	20	13	83
	1.2	19.28	39.76	24.1	15.66	100
	5.88	15.53	19.3	22.73	35.14	19.95
5	4	15	25	24	15	83
	4.82	18.07	30.12	28.92	18.07	100
	23.53	14.56	14.62	27.27	40.54	19.95
Total	17	103	171	88	37	416
	4.09	24.76	41.11	21.15	8.89	100
	100	100	100	100	100	100

Note: The value in each cell refers to frequency by percentage in terms of both rows and columns.

Source: The author's survey.

But why should this be so? The existing literature on anomalies in the correlation between economic wealth and subjective wellbeing in developing countries posits

various explanations (see Chapter 2). For example, it is contended that cultural and religious beliefs affect the degree of satisfaction with life (Camfield et al., 2010). Similarly, a suggestion of religious fatalism was apparent in some sample households, particularly amongst those from the lower income groups. Indeed, one Muslim household head asserted:

> Whatever Allah provides us, we are satisfied (Sahil – never attended school – polyethylene bag picker – satisfied with life).

Such an outlook implies that dissatisfaction with life can be understood as a lack of religious belief. However, faith is only one aspect of such incongruity. Among those who returned a higher subjective wellbeing score, inertia or a sense of having given up and a downward revision of aspirations regardless of education level was observed during the survey:

> It is all right according to us; what more we can do? (Munna – four years of education – building labourer – satisfied with life).

> Our fortune is bad. That is why we are here; that is all (Shafiq – graduate – tailor in an export factory – satisfied with life).

Anomalies are discussed further from an education perspective in the following section.

6.5.2. Econometric Analysis of the Relationship between Education and Subjective Wellbeing

An attempt was made to analyse the correlation between education and objective poverty as determined by MPCE, as well as that between education and subjective wellbeing. An econometric analysis was conducted using ordered probit regression. There were two dependent variables. The first was MPCE quintile: (1) lowest MPCE

group to (5) highest MPCE group. The second was the subjective assessment of relative household wealth: (1) lowest to (4) highest.

In order to ensure comparability across estimations, explanatory variables were kept exactly the same as MPCE and other indices in this chapter: employment ratio, LPG, out-remittance, household size, asset index, house index, male ratio, debt, and microfinance participation. Education-related variables also remained the same: (1) average education level of household members of 15 years and above; (2) household head's years of education; (3) years of education of most highly educated member of household; (4) proportions of household members having completed primary school, middle school, secondary school, higher secondary school, and tertiary education respectively; and (5) proportion of household members having completed at least primary school.

Table 6-17 shows the results of the analysis. In terms of MPCE quintile, the result is very similar to the MPCE regression analysis (Table 6-6). Employment ratio, LPG, out-remittance, asset index, house index, debt, and microfinance participation all have a significant positive correlation with expenditure, while a significant negative correlation with expenditure is shown amongst larger households. With regard to the education variables, average household education level, household head's education, most highly educated household member's education, the proportion of household members having completed secondary school, and proportion of household members having completed at least primary school are all significantly positive.

In contrast to MPCE quintile, some coefficient signs relating to subjective assessment of relative wealth differ slightly. Debt does not have a positive correlation with relative

wealth (the coefficient is negative but statistically insignificant) but a significant positive correlation with MPCE. Similarly, household size has a significant negative correlation with MPCE while it does not have such a significant correlation with relative household wealth. The coefficients for out-remittance, asset index, and microfinance participation are also positive with statistical significance. It thus seems that tangible resources such as consumer durables, other assets, and participation in a microfinance scheme are closely related not only with monetary poverty but also subjective assessment of relative wealth.

Education variables in subjective assessment of relative wealth are positive and largely statistically significant. In this regard, there is little difference in terms of coefficient sign between MPCE quintile and subjective assessment of relative wealth. This implies that education is positively correlated with both indices. This result confirms the correlation between household level of education and expenditure/income, as well as that between education and relative wealth, which together indicate that the proportion of those having completed at least primary school – secondary school in particular – has a significant correlation with relative wealth at household level (see Equations 7 to 10).

Table 6-17 Ordered probit estimates for MPCE quintiles and subjective assessment of relative wealth

Dependent variable	MPCE quintile Eq (1)	Relative wealth Eq (2)	MPCE quintile Eq (3)	Relative wealth Eq (4)	MPCE quintile Eq (5)	Relative wealth Eq (6)	MPCE quintile Eq (7)	Relative wealth Eq (8)	MPCE quintile Eq (9)	Relative wealth Eq (10)
Employment ratio	1.1545 ***	0.2467	1.2244 ***	0.3873	1.2172 ***	0.3635	1.0753 ***	0.1304	1.0461 ***	0.0934
	(0.3447)	(0.2958)	(0.3545)	(0.3003)	(0.3468)	(0.2950)	(0.3425)	(0.3016)	(0.3401)	(0.2981)
LPG	0.6098 ***	-0.0270	0.6483 ***	0.0477	0.5656 ***	-0.0871	0.6097 ***	0.0453	0.6047 ***	0.0438
	(0.1400)	(0.1309)	(0.1384)	(0.1296)	(0.1412)	(0.1355)	(0.1427)	(0.1300)	(0.1403)	(0.1277)
Out-remittance	0.7439 ***	0.6043 ***	0.7638 ***	0.6315 ***	0.7627 ***	0.6380 ***	0.7560 ***	0.7034 ***	0.7707 ***	0.7147 ***
	(0.1794)	(0.1661)	(0.1811)	(0.1631)	(0.1798)	(0.1644)	(0.1821)	(0.1659)	(0.1783)	(0.1632)
Household size	-0.4003 ***	0.0131	-0.3916 ***	0.0259	-0.4171 ***	-0.0147	-0.4192 ***	-0.0113	-0.4263 ***	-0.0163
	(0.0462)	(0.0432)	(0.0465)	(0.0440)	(0.0465)	(0.0426)	(0.0473)	(0.0439)	(0.0473)	(0.0432)
Asset index	0.0131 ***	0.0184 ***	0.0135 ***	0.0187 ***	0.0136 ***	0.0189 ***	0.0133 ***	0.0196 ***	0.0134 ***	0.0194 ***
	(0.0028)	(0.0034)	(0.0028)	(0.0036)	(0.0027)	(0.0034)	(0.0027)	(0.0034)	(0.0027)	(0.0033)
House index	0.0023 ***	0.0009	0.0024 ***	0.0010 *	0.0022 ***	0.0008	0.0028 ***	0.0014 **	0.0029 ***	0.0015 **
	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)
Male ratio	0.3108	0.1956	0.3409	0.2790	0.2550	0.1388	0.3302	0.2865	0.3032	0.2679
	(0.3589)	(0.3599)	(0.3572)	(0.3536)	(0.3652)	(0.3664)	(0.3652)	(0.3672)	(0.3591)	(0.3609)
Debt	0.4777 **	-0.1525	0.4975 **	-0.1195	0.4853 **	-0.1411	0.4479 **	-0.1410	0.4536 **	-0.1456
	(0.2170)	(0.1695)	(0.2193)	(0.1746)	(0.2121)	(0.1673)	(0.2204)	(0.1734)	(0.2165)	(0.1720)
Microfinance	0.6564 ***	0.4934 **	0.6319 ***	0.4396 **	0.6509 ***	0.4806 **	0.6543 ***	0.4824 **	0.6588 ***	0.4813 **
	(0.1819)	(0.2268)	(0.1799)	(0.2232)	(0.1784)	(0.2233)	(0.1785)	(0.2215)	(0.1784)	(0.2191)
Average education	0.0691 ***	0.1188 ***								
	(0.0218)	(0.0224)								
Household head's education			0.0385 ***	0.0712 ***						
			(0.0147)	(0.0162)						
Most highly educated					0.0628 ***	0.1049 ***				
					(0.0189)	(0.0188)				
Primary school ratio							5.1450	4.6247		
							(3.7821)	(3.5149)		
Middle school ratio							5.5566	2.2895		
							(4.8813)	(3.5806)		
Secondary school ratio							13.3097 *	7.2311 ***		
							(7.1395)	(2.7809)		
Higher secondary ratio							-1.3975	29.7544		
							(18.2646)	(30.7953)		
Tertiary education ratio							38.5221	13.6560		
							(25.3665)	(29.9075)		
At least primary school ratio									7.2736 ***	5.52723 ***
									(2.2034)	(1.6169)
Pseudo R^2	0.2419	0.1855	0.2396	0.1786	0.2439	0.1908	0.2439	0.1657	0.2430	0.1649

Notes: N = 413. ***, ** and * indicate significance at 1%, 5% and 10% respectively. Figures in parentheses indicate robust standard errors.

Next, subjective wellbeing was analysed by ordered probit regression. The dependent variable was subjective assessment of overall satisfaction with life according to a Likert scale of (1) very dissatisfied to (5) very satisfied. The explanatory variables were the same as other estimates in this section. Additionally, the logarithm for monthly household per capita income and relative income variables – i.e. income quintiles one (the lowest) to four (higher), with reference to the highest (five) – was added.

The results are given in Table 6-18.[63] Again, out-remittance, asset index, and microfinance participation coefficients are positive with statistical significance, being correlated with both objective and subjective wellbeing. In contrast to the ordered probit regression on MPCE (Table 6-17), the household size sign generally changes to a positive indicator of subjective wellbeing.

This is because larger sample households tend to comprise extended families or, in some cases, nuclear families with an above average number of children. Extended families are a traditional way of living in India (Minault, 1981). However, it is not easy for slum households to accommodate many members in a limited space; therefore, a larger household could mean that it can afford to accommodate more people. This might lead to satisfaction with life due to the fact that family members can live together.

Indeed, break-up of the family was cited as a major reason why some slum dwellers were not satisfied with life. For example:

> I am very sad, because my father is separated from the family (Prakash – never attended school – engages in any type of daily labour – dissatisfied with life).

[63] It is noted, as Graham (2011) points out, that regression on ordered logistics or probability equations for happiness generally yields lower R-squared values, reflecting the extent to which feelings, emotions, and other components of true wellbeing drive the results.

> Due to some misunderstanding in the family, my wife and two sons live separately in our home village. They live without me over there; I am alone here (Suresh – five years of education – repairs electrical items – dissatisfied with life).
>
> My father takes care of the land and house in our village. I brought my children here from the village for a better education. After all, however, our family is not in one place (Harilal – five years of education – machine fitter in water tank factory – dissatisfied with life).

The literature suggests that in developed countries, social relationships constitute an important element of happiness (Diener and Seligman, 2004); the present thesis contends that the psychological effects of family ties are just as strong among low-income groups in a developing country context.

It should be noted that adding the income variable tends to reduce the other variable coefficients. In particular, the sign for proportion of employed household members changes from positive to negative (although statistically insignificant) when the income variable is added. Per capita household income tends to be higher in households in which more members are engaged in paid work. This leads to a negative assessment of satisfaction if the number increases, since the standard of living to which the household has become accustomed cannot be sustained by fewer working members.

In most cases, females are likely to go out to work in order to supplement and maintain household income. However, it seems that having a working wife carries a certain stigma among male slum dwellers. As discussed in Chapter 3, the norm regarding women's behaviour that dictates that they should be withdrawn from the labour market is common in India (Chen and Drèze, 2005), although such a custom is in reality

difficult for economically deprived households to observe.

While there is no significant positive correlation between the proportion of male household members and MPCE quintile (Table 6-17), the proportion of males in the household is positively correlated with subjective wellbeing. To put it the other way round, a higher proportion of females – unmarried girls in particular – imposes a psychological burden on the household. During the survey, it was often reported that households worried about having young girls. In particular, parents were extremely concerned about their daughters' safety, which led to a lower ranking in terms of subjective wellbeing:

> My young daughters are suffering from teasing by boys in this slum. I have to get them married off as soon as possible (Bimala – never attended school – very dissatisfied with life).

> My daughters are young. I fear for their safety because the environment here is not good at all (Sumita – never attended school – maid servant – very dissatisfied with life).

> My daughter got married to a drug addict and he died from an overdose. Now, she is staying with me (Mansuba – never attended school – very dissatisfied with life).

Table 6-18 Ordered probit estimates for subjective wellbeing

	Eq (1)	Eq (2)	Eq (3)	Eq (4)	Eq (5)	Eq (6)	Eq (7)	Eq (8)	Eq (9)	Eq (10)
Employment ratio	0.0577	-0.5055	0.1038	-0.4705	0.0531	-0.5373	0.0289	-0.5712	0.0233	-0.5758
	(0.3159)	(0.3758)	(0.3186)	(0.3783)	(0.3147)	(0.3716)	(0.3189)	(0.3784)	(0.3150)	(0.3745)
LPG	0.0285	-0.0400	0.0431	-0.0351	0.0354	-0.0302	0.1042	0.0207	0.0852	0.0023
	(0.1219)	(0.1248)	(0.1195)	(0.1228)	(0.1237)	(0.1264)	(0.1220)	(0.1255)	(0.1201)	(0.1235)
Out-remittance	0.4547 ***	0.3767 **	0.4543 **	0.3708 **	0.4780 ***	0.3915 **	0.5143 ***	0.4247 **	0.5229 ***	0.4225 **
	(0.1771)	(0.1791)	(0.1777)	(0.1792)	(0.1757)	(0.1782)	(0.1796)	(0.1805)	(0.1769)	(0.1777)
Household size	0.0543	0.0988 **	-0.0587 *	0.1020 ***	0.0492	0.0985 **	0.0667 *	0.1187 ***	0.0558	0.1092 ***
	(0.0353)	(0.0389)	(0.0355)	(0.0393)	(0.0354)	(0.0390)	(0.0363)	(0.0398)	(0.0356)	(0.0393)
Asset index	0.0111 ***	0.0089 ***	0.0111 ***	0.0088 ***	0.0115 ***	0.0091 ***	0.0125 ***	0.0100 ***	0.0123 ***	0.0097 ***
	(0.0025)	(0.0026)	(0.0026)	(0.0026)	(0.0025)	(0.0026)	(0.0027)	(0.0027)	(0.0026)	(0.0026)
House index	0.0010 *	0.0008	0.0010 *	0.0008	0.0010 *	0.0008	0.0008	0.0005	0.0009	0.0006
	(0.0006)	(0.0005)	(0.0006)	(0.0005)	(0.0006)	(0.0005)	(0.0006)	(0.0005)	(0.0006)	(0.0005)
Male ratio	0.6789 **	0.5141	0.6981 **	0.5242	0.6802 ***	0.5156	0.7646 **	0.5755 *	0.6959 **	0.5069
	(0.3461)	(0.3411)	(0.3447)	(0.3408)	(0.3465)	(0.3412)	(0.3499)	(0.3456)	(0.3454)	(0.3405)
Debt	-0.3223	-0.2962	-0.3173	-0.2949	-0.3151	-0.2904	-0.3141	-0.2800	-0.2865	-0.2568
	(0.1995)	(0.2080)	(0.1997)	(0.2084)	(0.1982)	(0.2076)	(0.2026)	(0.2123)	(0.2001)	(0.2107)
Microfinance	0.4500 **	0.4403 **	0.4363 **	0.4316 **	0.4499 **	0.4412 **	0.4493 **	0.4439 **	0.4642 ***	0.4548 **
	(0.1784)	(0.1845)	(0.1776)	(0.1844)	(0.1782)	(0.1848)	(0.1788)	(0.1854)	(0.1779)	(0.1843)
Log of household head's per capita income		0.5184 ***		0.5166 ***		0.5351 ***		0.5721 ***		0.5692 ***
		(0.1709)		(0.1709)		(0.1683)		(0.1739)		(0.1703)
Average education	0.0259	0.0118								
	(0.0198)	(0.0199)								
Household head's education			0.0194	0.0119						
			(0.0147)	(0.0146)						
Most highly educated					0.0114	0.0002				
					(0.0162)	(0.0157)				
Primary school ratio							-7.1800 **	-7.1308 **		
							(3.4456)	(3.4217)		
Middle school ratio							-4.5110	-6.5865 **		
							(3.5071)	(3.4618)		
Secondary school ratio							3.0475	2.0943		
							(2.2181)	(2.1246)		
Higher secondary ratio							8.6280	15.0870		
							(17.3591)	(14.9814)		
Tertiary education ratio							4.7198	-8.1785		
							(19.8342)	(21.4600)		
At least primary school ratio									-2.7758 *	-3.6273 **
									(1.5808)	(1.7051)
Pseudo R^2	0.0895	0.0993	0.0897	0.0996	0.0885	0.0990	0.0929	0.1047	0.0899	0.1020

Notes: N=412. ***, ** and * indicate significance at 1%, 5%, and 10% respectively. Figures in parentheses indicate robust standard errors.

Women in female-headed households were also concerned about their future, security and safety, for example:

> I am a young lady; without a husband, I feel insecure (Meena – never attended school – maid servant at a private school – very dissatisfied with life).
>
> I am not happy because I do not have a husband (Renu – never attended school – currently maid servant – very dissatisfied with life).
>
> My husband ran off, leaving me behind. It has been one and half years since then; he has not come back. I have been facing an uneasy time (Sushima – never attended school – dissatisfied with life).

When income variables are added, the coefficient for proportion of males in the household transpires to be insignificant. Thus, it may be concluded that income weakens the correlation between the male ratio and subjective wellbeing to some extent.

All education-related variables have a largely positive correlation with subjective wellbeing. However, unlike the education variables in the ordered probit models of MPCE quintile and subjective assessment of relative wealth (Table 6-17), most coefficients are statistically insignificant. Moreover, a distinctive departure from the results in previous sections is that the proportion of household members having completed primary and middle school has a significant negative correlation with subjective wellbeing. Similarly, the ratio for household members having completed at least primary school also has a significant negative correlation with subjective wellbeing.

In general, sample slum households with greater proportions of educated members were not necessarily satisfied with their lives. In particular, those that had more members

with some schooling but not a very high level of education tended to be dissatisfied. Why was this so? In the literature, adjustment is identified as a key mechanism that affects anomalies in the correlation between economic wealth and subjective wellbeing, that is, subjective wellbeing tends to be enhanced with an increasing income; however, a rising income also tends to be accompanied by higher aspirations (Brickman and Campbell, 1971 cited in Clark, 2012; Graham, 2012).

When conducting the survey, a young unmarried girl who had been educated to postgraduate level and was currently providing private tuition to children told me, “We should not be satisfied with what we are now; we should continuously make an effort to improve ourselves.” This is a good example of the perception that emerged from the study: the educated are more aware that they do not have to be content with living in a slum for the rest of their lives. Schooling develops the capacity for introspective contemplation and constructive thought, playing a role in the judgment of subjective wellbeing. Educated slum dwellers are thus able to set a goal, attain it, and try to set further goals.

However, it is comparatively difficult to attain goals when one is constrained by various disadvantages, including low income, discrimination, a low social position, and few economic opportunities. Even if the slum dwellers under study did accomplish their goals, they were invariably obliged to compare and contrast them with those of educated people who did not live in slums (such a comparison is assumed to be different from that of the relatively uneducated who compared themselves with others who had attained a similar level of education). For example:

> My brothers are all educated and in good posts. One is a doctor and the other three are all [medical] compounders (Sizauddin – graduate – tailor in an export

factory – dissatisfied with life).

My father is a property dealer. My younger brother has a BA. I am here as a carpenter (Atar – educated to 10th grade – carpenter – neither satisfied nor dissatisfied).

As discussed in Chapter 2, the existing literature suggests that rural–urban migrants tend to compare their circumstances with those of their new urban neighbours rather than the standard of living of those they left behind in the countryside (Fafchamps and Shilpi, 2008; Knight and Gunatilaka, 2011). However, as the above examples demonstrate, the present study found that comparatively highly educated residents of slums did not seem to compare themselves with either their present or former neighbours; their point of reference was the individual who had received a similar level of schooling but did not live in a slum. It is likely that they believed that it was unfair that they should end up living in such conditions after being educated for longer years.

It is also noteworthy that when monthly per capita income variable or relative income dummy variables are included in explanatory variables, the correlation between education and subjective wellbeing generally becomes weak. This implies that the strength of the relationship between schooling and subjective wellbeing is determined mainly by the education–income dynamic rather than any direct correlation between education per se and subjective wellbeing. This finding is corroborated by a South African case that to some extent attributes subjective wellbeing to income level (Kingdon and Knight, 2006). Such findings re-emphasise the hypothesis that better employment opportunities – and thus higher earnings – are more important than education itself in the judgement of subjective wellbeing, particularly with regard to the relatively highly educated.

The analysis in this chapter has shown that there is a significant positive correlation between income and level of subjective wellbeing: when income variables are added to the equation, it is clear that subjective wellbeing increases with income. This position is corroborated by the existing literature (e.g. Oswald, 1997; Frey and Stutzer, 2002; Sacks et al., 2010).

When household per capita income is replaced by relative income (household per capita monthly income quintile) dummies, the coefficients for the lowest three quintiles prove to be significantly negative, but this is not the case with the second highest quintile in comparison with the highest income group (Table 6-19). Indeed, income quintile coefficients mostly show monotonic functionality. This means that for the poor, both absolute and relative income is critical, but only the former is relevant to the non-poor. This result is corroborated by the contention in the existing literature that relative income is a vital consideration for poor households (e.g. Fafchamps and Shilpi, 2008). Furthermore, in comparison with the different education variable coefficients in Table 6-18, most of the corresponding coefficients in Table 6-19 are larger in most of the cases. This implies that the correlation between education and subjective wellbeing is stronger in the linkage of education–relative income with subjective wellbeing, than in that of education–absolute income with subjective wellbeing.

Table 6-19 Subjective wellbeing and household relative income

	Eq (1)	Eq (2)	Eq (3)	Eq (4)	Eq (5)
Average education	0.0154				
	(0.0200)				
Household head's education		0.0142			
		(0.0148)			
Most highly educated			0.0045		
			(0.0163)		
Primary school ratio				-7.3714 **	
				(3.4073)	
Middle school ratio				-7.0428 **	
				(3.4108)	
Secondary school ratio				2.6335	
				(2.1312)	
Higher secondary ratio				12.0482	
				(15.6280)	
Tertiary education ratio				1.3710	
				(22.4904)	
At least primary school ratio					-3.6317 **
					(1.7614)
Lowest income	-0.7015 ***	-0.6984 ***	-0.7194 ***	-0.7767 ***	-0.7819 ***
	(0.2280)	(0.2288)	(0.2257)	(0.2339)	(0.2298)
Low income	-0.5182 **	-0.5092 **	-0.5287 **	-0.5340 **	-0.5609 **
	(0.2359)	(0.2354)	(0.2359)	(0.2379)	(0.2355)
Middle income	-0.5082 **	-0.5036 **	-0.5225 **	-0.5477 ***	-0.5470 ***
	(0.2059)	(0.2058)	(0.2056)	(0.2105)	(0.2077)
High income	-0.2004	-0.1900	-0.2079	-0.1982	-0.2268
	(0.1957)	(0.1963)	(0.1953)	(0.2003)	(0.1968)

Notes: N = 412. All explanatory variables in Table 6-18 are included but not individually shown. Figures in parentheses indicate robust standard errors. ***, ** and ** indicate significance at 1%, 5% and 10% respectively.

6.6. Conclusion

This chapter has examined the correlation of education and multidimensional poverty at the household level. It transpires that 75.3% of sample slum households fall below the poverty line. The correlation between monetary poverty and education tends to be strong, while that between other forms of deprivation – as determined by basic needs and capabilities, relative wealth, and subjective wellbeing – and education is weak.

On the one hand, schooling has a largely positive correlation with monetary poverty. Not only the level of the most highly educated member of the household, but other education-related variables – such as the average household, household head's schooling levels– have a significant positive correlation.

On the other hand, a higher level of education does not necessarily have a positive correlation with one's basic needs and capabilities or subjective wellbeing. Anomalies associated with the correlation between education and subjective wellbeing can be explained by the role of schooling in creating aspirations, deepening individuals' insight, widening horizons, and enhancing introspective contemplation. It is hypothesised that educated slum dwellers tend to compare themselves with others who have attained similar levels of education but do not live in slum areas.

Finally, education seems to have a stronger positive correlation with subjective wellbeing in combination with income than it does by itself. Moreover, amongst poorer slum households in particular, both absolute income and relative income in the slum have a positive correlation with subjective wellbeing. However, as absolute income rises, relative income becomes largely insignificant. Nevertheless, the correlation between education and poverty seems to be more clearly manifested in terms of monetary poverty than it is in respect of non-monetary poverty.

Chapter 7 Slum Children's Access to Education

7.1. Introduction

It is widely acknowledged that education in India exhibits an array of inequalities in terms of access, standard of schooling, and educational attainment, across spatial, social, economic, gender, and ethnic lines (Borooah and Iyer, 2005; Kingdon, 2007; Rustagi, 2009; Bhalotra and Zamora, 2010; Govinda, 2011). Therefore, disparities in the quality and quantity of education to which a child has access are likely to affect a wide range of opportunities in the course of their life; and, worse still, such inequity is likely to reinforce the socio-economic status quo for future generations (e.g. Gradstein et al., 2004; Hannum and Buchmann, 2005). If this prognosis is accurate, the question arises as to whether slum dwellers, the vast majority of whom are monetary poor, have any hope of gaining access to a high quality of education, and if there is ultimately any possibility of them escaping poverty.

The purpose of this chapter is to discuss the education of slum dwellers' children aged 5 to 14 years. It focuses on (1) whether slum children attend school, and, if so, what factors – including poverty – determine access; (2) the cost of schooling; and (3) whether slum children learn adequately at school. In this regard, the question of the education of disadvantaged children in terms of economic wealth, caste, religion, gender and migration is investigated.

The analysis in this chapter contributes to the filling of a gap in the literature on education in slum areas. The investigation also enables the drawing of implications for policy that might improve the prospects of slum children. It also addresses the possibility of escaping poverty and the maximisation of the range of future

opportunities for such children.

The structure of the chapter is as follows. Section 7.2 outlines the context and describes the main characteristics of slum children. Section 7.3 presents an overview of the attendance situation and types of school. Section 7.4 examines out-of-school children. Section 7.5 investigates the correlation between children's characteristics and school attendance. Section 7.6 posits the argument that the costs of schooling act as constraints to education. Section 7.7 depicts the situation in terms of children's basic learning. Finally, a summary of the major findings of the chapter is presented in Section 7.8.

7.2. Profile of Slum Children

Of the total sample of 417 slum households, 718 children aged between 5 and 14 years (the age group covered by Delhi's compulsory education requirement)[64] resided in 311 households. This figure comprised 417 boys and 301 girls.[65]

Table 7-1 shows the socio-economic characteristics of sample slum children in comparison to those of juvenile residents of the city as a whole. Disparities identified were estimated using National Sample Survey (NSS) (2007/08) results. The data show that the composition of both sets of children is similar in terms of gender. However,

[64] The education structure in Delhi comprises five years of primary education, three years of middle school, and two years of secondary education. The age of admission is five, which, according to the Delhi Schools Education Act, 1973 and Delhi School Education Rules, 1973, means that children should in effect have not attained the age of five years by admission. Compulsory education (8 years) is required between the ages of 5 and 13 in Delhi. However, according to the Constitution of India and the Right of Children to Free and Compulsory Education Act, 2009, education is guaranteed up to the age of 14. Therefore, this study includes children up to this age.

[65] The reason that boys far outnumber girls in this random sample is primarily due to a bias against females that derives from a strong cultural tradition giving greater value to sons. Additionally, the Census of India (2011) reported that the number of females per 1,000 males in the 0 to 6 years age group was 866 in Delhi, which was considerably lower than the national figure (914) (Census of India website http://censusindia.gov.in/ accessed on 15 December 2012).

Muslims and non-Muslim lower classes – such as Scheduled Castes (SCs), Scheduled Tribes (STs), and Other Backward Classes (OBCs) – tend to be more heavily concentrated in slums. As expected, the proportion of first-generation learners – defined as those characterised by neither parent ever having attended school – is much higher in slums. Furthermore, it is clear that the degree of poverty – defined as the percentage of the population below the poverty line in terms of monthly per capita consumer expenditure (MPCE) – suffered by children in slum households tends to be higher than that experienced by the average child in Delhi.

Table 7-1 Socio-economic background of children aged 5 to 14 (2007/08)

	Delhi	Sample slum households
No. of children	2,383,206	718
Mean household size (persons)	5.6	6.1
	(1.91)	(1.50)
Mean MPCE	1,307.49	543.93
	(844.52)	(259.51)
Proportion of children from households below the poverty line (%)	20.81	86.21
Proportion of first generation learners (%)	15.05	41.90
Proportion of girls (%)	42.31	41.23
Proportion of Muslims (%)	13.84	24.79
Proportion of SC/STs (%)	32.41	25.38
Proportion of OBCs (%)	11.67	21.03

Note: Mean standard deviations are in parentheses.

Sources: National Sample Survey 2007/08, Schedule 25.2 unit level data; the author's survey.

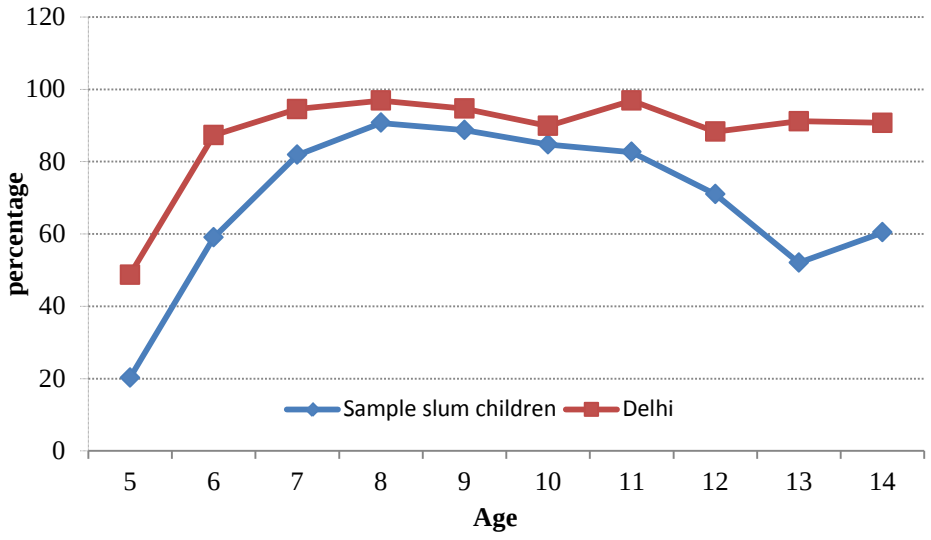
Of the total number of children in the sample, 84.4% were born in Delhi. Those who were not born in the city originate mainly from the former states of Uttar Pradesh (6.7%) and Bihar (3.5%). However, only 15.0% are second-generation Delhiites whose head of household was born in the city; a group largely composed of either Scheduled Castes (SCs) or Scheduled Tribes (STs) (39.8% of second generation Delhities), or Muslims (38.0% of second generation Delhiites).

7.3. School Attendance and Type of Institution

7.3.1. School Attendance

The sample school attendance ratio, which refers to whether a child was attending any education institution – including a non-formal school but excluding a pre-school – in the academic year 2007/08, is 68.1% of the total.[66] This is much lower than the 88.6% attendance ratio for Delhi as a whole (NSS, 2007/08). The attendance ratio among sample slum children peaks at age 8, declines to 52.0% at age 13, and rises again to 60.4% at age 14; while the attendance ratio levels off after age 6 for Delhi children as a whole (see Figure 7-1). Only one pupil in the present study's sample attended a non-formal school, which indicates that such education does not play a major role in notified slums.

Figure 7-1 School attendance by age (percentage)



Sources: National Sample Survey 2007/08, Schedule 25.2 unit level data; the author's survey.

[66] The attendance ratio for those aged 5 to 13 years (Government of Delhi compulsory education age group) is 68.6 per cent. Thus, there is no significant difference when the age is extended to 14 years.

It is frequently argued in the education literature on India that girls and children of both sexes from SCs and STs are less likely to attend school (Borooah and Iyer, 2005; Kingdon, 2007; Rustagi, 2009; Bhalotra and Zamora, 2010; Govinda, 2011). However, in the sample, the attendance ratio for girls (71.3%) is higher than that for boys (65.9%). Since attendance ratios across gender lines in Delhi as a whole are quite similar – i.e. 88.3% for girls and 88.8% for boys (NSS, 2007/08) – the slightly higher attendance of girls found in the sample seems to be a peculiar characteristic of slums. Attendance patterns across castes and religions in slums largely reflect those of Delhi as a whole, although absolute attendance ratios in the former are much lower. Thus, attendance ratios in Delhi as a whole are 92.2% for general castes, 84.4% for OBCs, 89.4% for SC/STs, and 79.8% for Muslims (NSS, 2007/08); while in sample slum households, the attendance ratio for general castes (79.6%) is higher than that for OBCs (64.6%), SC/STs (68.7%), and Muslims (61.2%).

7.3.2. Private Schooling

As the quality of government school education has deteriorated over the years, middle and upper class households have tended to turn to private education for their children (Kumar, 2008). Accordingly, it is increasingly clear that the de facto privatisation of education – as reflected in the proliferation of private schools and escalating numbers of pupils enrolling in them – has become widespread in a large number of states, particularly in urban areas. For example, it is estimated from the NSS (2007/08) that 8.8% and 26.9% of primary school pupils (grades 1–5) in Delhi attend private aided and unaided schools respectively; while corresponding figures for middle school level (grades 6–8) are 8.5% for aided private school and 21.3% for unaided private school.[67]

[67] The proportion of pupils in private school is likely to be underestimated due to the fact that official statistics do not take into account those institutions that are not recognised by the local authority. Many commentators argue that low-fee private school enrolment rates have increased

Table 7-2 shows that in Delhi, the learning environment and education facilities are generally more favourable in private schools – unaided institutions in particular – than in their government-implemented counterparts.[68]

Based on the results of their school survey, Tooley and Dixon (2007) conclude that the growth of private education in slum areas seeks to meet the needs of low-income families, although they do not define the term 'low income'. However, based on an albeit limited slum survey, Aggarwal and Chugh (2003) argue that private school enrolment rates are low since very few slum families can meet the necessary expenses.

Only 24 sample children (4.9% of those currently enrolled) attend private school, including institutions operated by non-governmental organisations (NGOs) and charitable trusts. Those going to private school are concentrated in the lower grades and none of them have proceeded beyond grade 6. In the household survey, some parents reported that they accessed institutional and, in some cases, non-institutional loans to finance private education, expressing uncertainty about how long they would be able to afford to continue sending their children to private school. Thus, it may be inferred that perceived inability to finance such education prevented slum children from continued access to private school up to the higher grades.

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in India (e.g. Tooley and Dixon, 2006; Srivastava, 2007); Nevertheless, according to NSS 2007/08 data, proportions of private unaided school going children who attended recognised and unrecognised institutions at the primary level were 68.2% and 12.9% respectively, 18.9% of pupils being uncertain whether their school was recognised or not. Similarly, the corresponding figures at middle school level were 88.0% for recognised schools, 3.3% for unrecognised schools, and 8.7% for unknown school status. In fact, parents in slum households are often not sure if their children's school is recognised; therefore, the two types of unaided school are not disaggregated in this thesis.

[68] For further discussion on private aided and unaided schools, see footnote 25 in Chapter 3.

Table 7-2 Education environment and learning facilities in Delhi schools (2007/08)

	Total	Government	Private aided	Private unaided
Total no. of schools	4,742	2,923	310	1,450
Percentage of schools equipped with/offering				
A common toilet (%)	90.5	89.1	97.7***	91.5*
A girls' toilet (%)	88.1	83.4	93.7***	90.9***
A playground (%)	79.3	74.2	78.7	90.0***
Book bank (%)	59.5	53.8	63.2**	69.4***
Medical checkup (%)	84.0	85.9	58.7***	85.3
Wheelchair access (%)	65.0	71.9	43.9***	56.8***
No. of computers (mean no.)	6.9	5.1	7.0*	10.3***
	(11.8)	(6.1)	(8.2)	(18.6)
No. of classrooms in good condition/total number of classrooms	0.854	0.786	0. 917***	0. 976***
	(0.367)	(0.367)	(0.254)	(0.116)
No. of SC, ST or OBC students/total number of students	0.239	0.311	0.212***	0.172***
	(0.248)	(0.249)	(0.229)	(0.185)
No. of graduate teachers/total number of teachers	0. 831	0.797	0.868***	0.890***
	(0.184)	(0.179)	(0.131)	(0.186)
No of teachers with teaching qualification/total numbers of teachers	0.950	0.946	0.914	0.963
	(0.089)	(0.090)	(0.121)	(0.078)
No. of pupils per classroom (1st to 8th grade pupils)	32.4	35.1	26.3***	27.6***
	(36.6)	(33.3)	(34.9)	(31.8)
Pupil to teacher ratio (1st to 8th grade pupils)	29.3	31.3	23.1***	26.4***
	(19.8)	(20.6)	(28.3)	(14.5)
Mean years of school establishment	30.9	35.1	50.0***	18.6***
	(20.0)	(19.6)	(24.8)	(11.3)

Notes: Other types of school management (N=59) are included in the total. Data for girls' toilets are presented only in the case of girls' and co-educational schools. ***, ** and * indicate that differences from government school are significant at 1%, 5% and 10% respectively. Standard deviations appear in parentheses. For definitions of private aided and unaided schools, see footnote 25.

Source: District Information System for Education (DISE), Delhi unit level data.

The proliferation of private schools around slum areas found in the school-based study (e.g. Tooley and Dixon, 2007) does not mean that all slum dwellers can afford to send their children to these institutions. However, since the number of schools in slums themselves is limited due to space constraints, and such areas in Delhi are often adjacent to other settlement clusters, an explanation can be found for the escalation of private schools in the fact that government housing and approved estates for the middle class – in which children are more likely to attend private school – have been constructed close

to slums.[69] Therefore, the correlation between the rise of private schools near slum areas and the absorption of slum children into such schools does not seem to be straightforward.

A United Nations Children's Fund (UNICEF) multiple state survey highlights discrimination against girls and lower castes in Indian private education (Mehrotra, 2006). Yet, no such gender bias is found in the present study's sample, although there is a tendency toward discrimination against Muslims.[70] Although private education generally costs far more than government schooling (as discussed in Section 7.6), even some comparatively low-income households are not completely excluded from the former. Nevertheless, the difference in terms of private education seems to be related to whether or not the head of household is a migrant (Tsujita, 2011). This implies that exceptionally long-term residents of Delhi have more extensive information about the local private schools and have acquired the means to meet the admission criteria for their children. The exception to this tendency is the case of Muslims, who it seems are less likely to send their children to private school no matter how many years they have lived in a slum.

In answer to the question of why certain slum households send their children to private school, some parents justified their decision based on the notion that private education was somehow preferable. For example:

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[69] Slum leaders asserted that there were only 12 government, 4 NGO-facilitated, and 1 religious charity-administered school within the 50 surveyed slum areas; while there were 259 government and 29 private schools located outside slum areas but which slum children attended.

[70] Private school attendance as a percentage of total attendance across gender lines is 7.7 % for boys and 6.3% for girls. In terms of caste, the percentages are 13.1% for general castes, 5.0% for SC/STs, and 4.5% for OBCs. In terms of religion, the percentages are 1.8% for Muslims and 5.8% for non-Muslims.

> Delhi's government schools are not good and the situation is getting worse. That is why I send my son to private school (Kishan – father of a 13-year-old).

> It is significant in terms of a child's future whether they attend a government or private school (Mohammed Iqbal – father of one private-and one government-school-going child).

In contrast, a parent who sent their children to government school said:[71]

> I know private schooling is better, but we cannot afford to send our children to such school (Suraj – father of three government school going children).

A hierarchical division of schools reflecting the socio-economic status of the family has intensified over the years (Hill et al., 2011; Drèze and Sen, 2013). Yet, the kind of private school that even slum dwellers can afford to send their children to presumably goes unrecognised by the government since such an institution charges lower fees but does not meet quality standards in terms of facilities or teachers (Nambissan, 2012). The analysis of type of school attended in the present study shows that government schools serving slum areas also suffer from neglect because their pupils come from lower socio-economic strata and the institutions themselves are provided with fewer resources. Although disparity in terms of school quality is beyond the scope of this study, it is worth emphasising the importance of improvement in public education, since a large majority of households are neither able to overcome barriers to admission criteria nor can they afford to send their children to private school.[72]

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[71] Unfortunately, there is no data on which government school some parents choose to send their children. However, the author's survey in Delhi slum households in 2012 found that decisions were based mainly on proximity and availability.

[72] In 2004, the Supreme Court ordered the Government of Delhi to investigate whether private schools were in compliance with their obligation to provide free education to the poor as a condition of the allotment of land at a concessionary rate (Juneja, 2005); and it seems that schools have been slow to meet the terms of the contract (Mallica, 2005). Such a situation appears to be a symptom of the Herculean task of meeting the mandatory provision of a guaranteed 25% enrolment of disadvantaged children in private schools, as stipulated in the Right of Children to Free and Compulsory Education Act, 2009.

7.4. Out-of-School Children

The survey asked children currently out of school if they had ever enrolled in an education institution. If they had, they are regarded in the analysis as ‘dropout’ children. If not, they are classified as ‘never-attended’ children.

7.4.1. Dropout Children

The proportion of children who have dropped out is 8.2% of the sample total (59 pupils), while it is only 3.1% for Delhi as a whole. However, it might be worth noting that the dropout rate in the slum household sample shows no significant difference in terms of gender, caste or religion. This result is quite different from findings for Delhi as a whole, which indicate that Muslims (7.8%) are more susceptible to dropout than non-Muslims (2.5%), and that girls (4.8%) are more likely to withdraw from school than boys (1.8%).

In terms of age, no pupil in the sample up to the age of eight has withdrawn from school, but after nine, the number of dropout children gradually increases year on year. This trend peaks at 14, with as many as 30.8% of children having withdrawn from school by this age. With regard to grade, among the children who have dropped out, the number in terms of completed years of education is largest for grade 5 (18 pupils), which is followed by grade 4 (12 pupils). This implies that the transition from primary to middle school is not smooth. A similar pattern for Delhi as a whole is also found in the NSS (2007/08).

The NSS (2007/08) of children in Delhi aged 5 to 14 years indicates that disinterest in studying and household financial constraints are the most frequent reasons for a child to withdraw from school; followed by inability to cope with the workload and examination

failure. Similarly, the causes of sample slum children dropout (Table 7-3) seem to be dominated by financial constraints, closely followed by the child's own unwillingness to go to school. The criterion of financial restriction is scattered across grades, while pupil disinclination to learn is concentrated among those children transitioning from primary to middle school, that is, grades 4, 5 and 6.

Table 7-3 Reasons for dropout (multiple answers)

Reason for dropout	No. of children	Boys	Girls
Financial constraint	18	9	9
Own unwillingness	16	10	6
Own poor performance	9	6	3
Migration	5	2	3
Domestic chores	4	1	3
Household economic activities	3	1	2
Negative parental perception	3	1	2
Lack of good company	3	3	0
Language problems	2	1	1
Family illness	2	1	1
Distance from school	1	0	1
Own bad behaviour	1	1	0
Disappeared and later found	1	1	0
NGO school closed	1	1	0
No response	3	2	1
Total no. of children	59	34	25

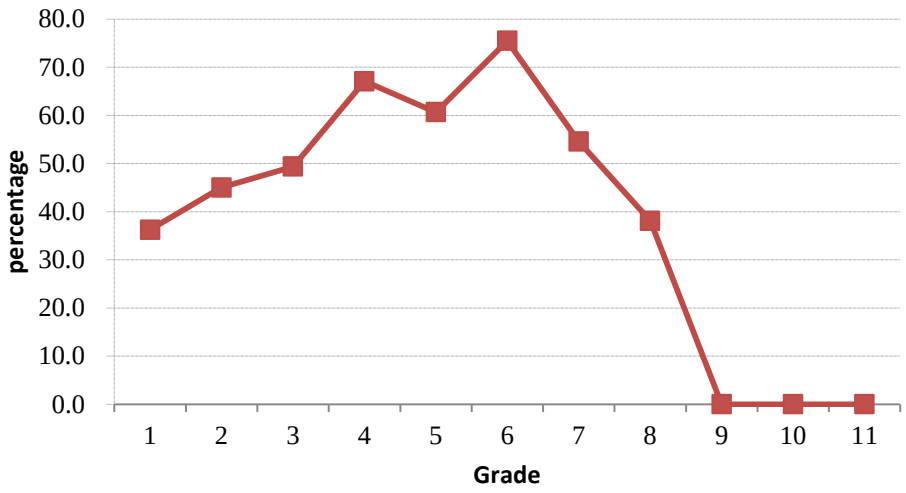
Source: The author's survey.

Another underlying reason for dropout seems to be overage. The percentage of Delhi pupils falling into this category in 2007/08 is assessed to be 9.0% and 14.3% at the primary and middle school levels respectively (Mehta, 2010, p. 97), although this is perhaps an underestimate. In the present study, due to difficulty in obtaining the exact date of birth in the household survey,[73] the minimum percentage of sample overage

[73] Exact date of birth was not asked in the survey as it was time consuming and usually impossible to determine in the pre-test rounds, mainly due to lack of records or recollection of children's birthdays among slum households. Moreover, it was not possible to cross-check dates

children by grade was estimated based on parental declaration of their children's age (see Figure 7-2).[74] The resultant overage rate is far higher (65.5%) than the average rate for Delhi as a whole. With widespread enrolment later than the official age of five and/or the repetition of the same grade(s), the overage problem was found to be common amongst sample slum children, particularly in the earlier grades. The rate rises up to grade 6, after which it declines towards the highest grade. Indeed, estimated overage rates after grade 9 are zero for children in slum households, which is probably due to the fact that very few graduate to the higher classes.

Figure 7-2 Percentage of overage slum children



Source: The author's survey.

Among those in the sample currently attending, the proportion of pupils repeating a grade is 7.6 %, while that of those admitted overage for their grade is 45.5%, which suggests that the latter phenomenon is principally due to late admission. This implies that delay in admission has a significant influence on slum children's education in the

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of birth due to the absence of original birth certificates in most cases.

[74] Overage is estimated as follows: a pupil is enrolled in grade 1 after the age of five or is required to repeat the grade. Since such a calculation is not based on exact date of birth (see footnote 73), the resultant figures can only be regarded as an estimate of the minimum percentage of overage children.

long run.

Thus, the majority of pupils who do reach the higher grades tend to be of the standard age. This trend seems to be implicitly related to the prioritisation of a pupil's academic performance as the underlying principle of schooling. Until recently, academic performance has been the sole criterion for proceeding to the next grade. Nevertheless, the decision to exclude a child is sometimes taken by schools in a subtle way. All pupils in Delhi take the Central Board of Secondary Education examination on completion of grades 10 and 12. Anecdotal evidence suggests that those who are less likely to pass are discouraged from continuing their education up to the grades in which the examination is taken, or from entering for it in order that schools might raise their pass rates.[75] Indeed, academic performance appears to have remained a critical issue for schools, even after the government policy of no repetition up to grade 8 was recently adopted.[76]

7.4.2. Never-Attended Children

According to the survey, the percentage of children who have never attended school in the slums under study is 23.7%, which is much higher than in Delhi as a whole (7.0%) (NSS, 2007/08). Interestingly, the slum sample rate of never-attend girls (20.3%) is significantly lower than that of boys (26.1%). However, the rate of never-attended children from general castes (17.7%) is lower than that from OBCs (24.5%), SC/STs (23.8%), or Muslims (28.1%). These disparities that cut across gender, caste and religion are also found in Delhi as a whole (NSS, 2007/08). Nevertheless, sample analysis indicates that the number of children who have never attended school generally

[75] This point was made in a focus group discussion in a non-surveyed slum in November 2008.
[76] The survey was conducted before the introduction of this policy, according to which any pupil who has at least a 75% attendance rate and sits the final examination is entitled to proceed to the subsequent grade. Under the Right of Children to Free and Compulsory Education Act, 2009, no pupil in a school can be made to repeat a year at any level.

declines with age. For example, 78.7% of 5-year-olds have never attended school, a rate that decreases to 27.0% of 6-year-olds, and drops still further to 5.6% of 9-year-olds. However, it rises again to 13.5% of 12-year-olds and 19.1% of 13-year-olds, mainly due to migration.

Table 7-4 shows the reasons why some children have never attended school. While NSS (2007/08) data for Delhi as a whole show negative parental perception of education (29.7% of never-attended children aged 5–14), followed by financial constraints (25.8% of never-attended children aged 5–14) as the most common explanations for this, the main reason amongst sample slum children is household financial constraints. This is followed by parental misconception of the admission age, regardless of their parents' place of birth or migration status. This implies that not only migrant parents, but also even some long-term residents and native Delhiites do not understand the enrolment system properly.

It should be noted that only 5.7% of never-attended sample children are engaged in paid employment, while 10.3% of those who have dropped out go to work. No child under the age of 11 is in full-time employment, but as the government school day in Delhi tends to be short, participation in household income generation might not prevent them from going to school.[77]

These findings seem to support the contention that children who drop out subsequently engage in paid employment (PROBE, 1999), rather than the conventional argument that children cannot go to school because of their jobs. This hypothesis is also consistent

[77] According to District Information System for Education (DISE) (2007/08) Delhi unit level data, 51.5% of government schools employ a 'shift' system in which the school building is shared with other schools.

with Banerji's (2000) slum study which suggests that it is common for never-attended children to be neither in school nor at work. Indeed, the phenomenon of 'nowhere children' is particularly prevalent among boys rather than girls in this survey.

Table 7-4 Reasons for never attending (multiple answer)

Reason for never-attended	No. of children	Boys	Girls
Financial constraint	54	34	20
Underage	31	21	10
Negative parental perception	17	11	6
Own unwillingness	7	5	2
Household economic activities	5	2	3
Domestic chores	3	1	2
Prioritisation of boys' education	2	0	2
Distance from school	2	2	0
Disability	2	2	0
Death of family member	1	1	0
Prioritisation of other children's education	1	1	0
No response	17	12	5
Total no. of children	142	92	50

Note: The total number of children excludes those in pre-school (18 boys and 10 girls).
Source: The author's survey.

7.5. Correlation between Children's Characteristics and School Attendance

7.5.1. Framework of Analysis

To investigate the correlation between children's characteristics and school attendance, research was conducted in accordance with the existing literature (Borooah and Iyer, 2005; Kingdon, 2007; Rustagi, 2009; Bhalotra and Zamora, 2010; Govinda, 2011) that takes into account the following variables affecting underprivileged children: caste, gender, religion, and the effects of migration. Two dependent variables were examined. The first was initial pupil attendance. This was investigated using a probit regression that assigned a value of one if a child had ever attended school (currently attending or dropout) and zero otherwise (never-attended).

The second variable was current pupil attendance. This was also investigated using a probit regression that assigned a value of one if a child was currently attending school and zero otherwise (dropout or never-attended).

Explanatory variables related to individual, household and community factors are described in Table 7-5. Evidence suggests that schooling factors can limit children's educational opportunities (Hanushek, 1995; Case and Deaton, 1999; Drèze and Kingdon, 2001). A lower quality of education deriving from inadequate physical infrastructure, poor teaching performance, and financial and human constraints to the expansion of school facilities in rural areas of developing countries may discourage children from attending. However, in India, the neighbourhood school system is far more complex in urban areas, where there tend to be multiple government schools attended by children from the same slum (See Chapter 4 Section 4.7). Accordingly, the survey encountered some difficulty in measuring the quality of neighbouring schools in terms of their combined effect on slum children's enrolment, and in determining which schools were attended by individual pupils due to lack of parental knowledge.

Moreover, child non-attendance of school (see tables 7-3 and 7-4) was in the great majority of cases found to be caused by household problems, although some of these obstacles might have been inextricably linked to challenges in school. The existing literature also suggests that individual and household characteristics tend to be associated with access to a greater extent than school characteristics (Drèze and Kingdon, 2001; Dostie and Jayaraman, 2006). Therefore, the present thesis focuses on individual, household and slum community factors to investigate the correlation between children's characteristics and attendance.

Based on the existing literature, parental economic wealth and education level are assumed to play an important role in a child's schooling (Drèze and Kingdon, 2001; Dostie and Jayaraman, 2006). A parental motivation dummy is therefore also expected to increase the probability of the present generation's education level. Excluding education expenditure, household MPCE can be endogenous and correlated with both parents' and children's education levels.

The exogeneity of MPCE was tested using a version of the Hausman test developed by Rivers and Vuong (1988). Thus, MPCE was estimated using ordinary least squares (OLS) regression (see Table 7-6). The explanatory variable in the regression was selected based on the larger proportions of expenditure on food items (52.8% of MPCE), fuel (8.6% of MPCE), and other socio-economic characteristics of slum households derived from previous studies (see Mitra, 2003; Mitra and Tsujita, 2008).[78] The predicted MPCE and generalised residuals computed from the regression (MPCERES) were then inserted into the equations (see tables 7-7 and 7-8). The MPCERES coefficients are significant, indicating that MPCE is endogenous to determinants of schooling. Therefore, the predicted MPCE can be used as an explanatory variable. Problems related to endogeneity are largely overcome by adopting

[78] MPCE is predicted using exogenous variables and identifying instruments. These include (1) dummy variables for girls, SC/STs, OBCs, Muslims, those born outside Delhi, a ration card (1 if a household has a ration card and 0 otherwise), and a liquid propane gas (LPG) (1 if a household has access to an LPG cooker and 0 otherwise); (2) interaction terms, including girls born outside Delhi, Muslims born outside Delhi, and lower castes (OBCs and SC/STs) born outside Delhi; and (3) continuous variables, including paternal education level (years), maternal education level (years), slum development index (see Table 7-5), household size (number of members), proportion of children aged 5 to 14 years, proportion of working members, and house index (house size in square feet multiplied by 1 if it is *kuchcha*, 2 if it is semi-*pucca*, and 3 if it is *pucca*). As shown in Table 7- 6, instrumental variables are individually and jointly significant. Instruments are considered to perform reasonably in terms of their ability to predict MPCE excluding that on education. Therefore, inconsistency is not a major problem in estimating the determinants of school attendance and grade achievement. It is also assumed that the error for this equation is normally distributed and that the coefficients are estimated by probit analysis.

the predicted MPCE.[79]

Socially disadvantaged children – those from SC/STs, OBCs (except for Muslims), and Muslim backgrounds – and girls in general were assumed to be less likely to go to school. The effect of migration was examined using a 'migrant' dummy. Additionally, the study investigated whether migrants who were socially disadvantaged in terms of caste, gender or religion experienced greater difficulty in gaining access to school due to the interaction of migration status and membership of an underprivileged group. These included a 'migrant girls' (1 for girls born outside Delhi and 0 for those who did not fall into such a group); a 'migrant lower caste' (1 for SCs, STs or OBCs born outside Delhi and 0 for those who did not fall into such groups); and a 'migrant Muslim' (1 for Muslims born outside Delhi and 0 for those who did not fall into such a group).

The correlation between the household head's migration status and a child's schooling was examined by considering the former's length of residence in Delhi, state of origin, and whether he or she came from a rural or urban area; using non-migrants as a reference group. These dummy variable coefficients tend to be negative although none of them is statistically significant (the result is not shown in the interests of brevity). This is because the average duration of migrant household heads' residence in Delhi was 20.5 years, and such parents might have spent many years gathering extensive information about available schools and acquiring the means to successfully enrol their children.

[79] Endogeneity can be addressed using several other methods. One of these is to find explanatory variable(s) closely associated with MPCE through principal component analysis or factor analysis. However, it is not certain whether MPCE is an a priori exogenous variable in these models. Therefore, this thesis first tested the exogeneity of MPCE and then addressed endogeneity by using the predicted MPCE.

Table 7-5 Summary of descriptive statistics

Variable	Description	Mean	Std. Dev.
Initial school enrolment	0 = never-attended; 1 = ever attended (dropout or currently attending).	0.76	0.43
Current attendance	0 = never-attended or dropout; 1 = currently attending.	0.68	0.47
Age	Child's age in years.	9.38	2.85
Age squared	Square of child's age in years.	96.10	53.77
MPCE	Predicted household MPCE (excluding education expenditure) computed from the determinants of MPCE results (see Table 7-6).	519.15	114.75
Mother's education level	Mother's educational attainment in years.	0.99	2.26
Father's education level	Father's educational attainment in years.	3.70	3.96
Parental motivation	1 = university education or above as parents' desired level of education; 0 = otherwise. This represents the open answer to the question, "What kind/level of education do you think is suitable for this child's better employment prospects?" This is followed by the question, "What job do you expect this child to do in the future?"	0.30	0.46
Slum development	The unweighted sum of the following: Paved roads (1 if a child lives in a slum where internal roads are paved 100%; 0 otherwise) + Street lighting (1 if a child lives in a slum where any street light is functioning; 0 otherwise) + Spraying (1 if a child lives in slum where vector-control spraying has been provided over the previous 12 months; 0 otherwise) + Refuse collection (1 if a child lives in a slum where refuse is collected; 0 otherwise) + Electricity (1 if a child lives in slum where a legal electricity connection is available; 0 otherwise) + Mobile health clinic (1 if a child lives in a slum where any mobile health clinic has been available during the previous 12 months; 0 otherwise) + Decision-making body (1 if a child lives in a slum where a decision-making body has been organised; 0 otherwise).	4.30	1.49
Girl	1 = girl; 0 = boy.	0.41	0.49
SC/ST	1 = SC/ST; 0 = non-SC/ST.	0.25	0.44
OBC	1 = Non-Muslim OBC; 0 = non-Muslim, non-OBC.	0.21	0.41
Muslim	1 = Muslim; 0 = other religion.	0.25	0.43
Migrant	1=child born outside Delhi; 0= child born in Delhi	0.16	0.36

Table 7-6 OLS estimates of MPCE

Dependent variable = MPCE excluding education expenditure	Coefficient		t-ratio
Girl	21.2883		1.18
SC/ST	-3.6923		-0.16
OBC	-2.2951		-0.10
Muslim	1.7144		0.08
Migrant	44.6194		1.34
Migrant girl	-70.5072		-1.51
Migrant Muslim	-11.5148		-0.18
Migrant lower caste	-9.8666		-0.17
Father's education level	11.3223	***	4.72
Mother's education level	-0.3643		-0.09
Slum development	31.5739	***	4.62
Household Size	-41.1537	***	-6.64
Proportion of children aged 5 to 14	-160.5343	***	-2.68
Proportion of working household members	233.1449	***	3.27
House index	0.3988	***	5.64
Ration card	46.7136	*	1.96
LPG	57.4854	***	3.11
Constant	462.0774	***	6.45

Notes: Definitions of explanatory variables can be found in Table 7-5 and footnote 78.
*** and * indicate significance at 1% and 10% respectively.

7.5.2. Results

The results are given in tables 7-7 and 7-8. Both younger and older children are less likely to attend school than their middle-years counterparts. As expected, children from wealthier households are more likely to go to school and are less likely to drop out, although the marginal effects of this variable are small. Conversely, children's education may be constrained by lack of household access to credit. This result is largely consistent with earlier findings in terms of developing countries (e.g. Alderman et al., 1997; Behrman and Knowles, 1999).

Table 7-7 Probit estimates of initial enrolment

	Eq (1)				Eq (2)			
Variable	Coefficient	Robust standard error		Marginal effect	Coefficient	Robust standard error		Marginal effect
Age	1.5042	0.1586	***	0.4006	1.5097	0.1594	***	0.4005
Age suared	-0.0708	0.0083	***	-0.0189	-0.0712	0.0084	***	-0.0189
MPCE	0.0022	0.0007	***	0.0006	0.0018	0.0007	**	0.0005
Father's education level	0.0183	0.0215		0.0049	0.0205	0.0214		0.0054
Mother's education level	0.0063	0.0330		0.0017	0.0107	0.0335		0.0028
Parental motivation	0.2774	0.1409	**	0.0702	0.2765	0.1402	**	0.0697
Slum development	-0.0479	0.0440		-0.0128	-0.0345	0.0437		-0.0091
Girl	0.2216	0.1237	*	0.0580	0.3774	0.1410	***	0.0972
OBC	-0.0685	0.2160		-0.0186	0.0969	0.2279		0.0251
SC/ST	-0.0098	0.1976		-0.0026	0.0209	0.1986		0.0055
Muslim	-0.1911	0.2157		-0.0531	0.0317	0.2301		0.0084
Migrant	-0.5608	0.1631	***	-0.1735	0.0788	0.2577		0.0204
Migrant girl					-0.6401	0.3353	*	-0.2083
Muslim migrant					-1.0530	0.4087	*	-0.3723
Migrant lower caste					-0.7324	0.4592		-0.2469
Constant	-7.4491	0.8145	***		-7.4960	0.8225	***	
MPCERES	0.0010	0.0005	**		0.0003	0.0001	**	
No. of observations		678				678		
Pseudo R^2		0.2690				0.2859		

Notes: To calculate the marginal effects, the mean value was used for continuous variables and a value of zero was used for dummy variables. MPCERES denotes generalised residuals computed from MPCE estimates by OLS regression (see Table 7-6). ***, ** and * represent statistical significance at 1%, 5% and 10% respectively.

Table 7-8 Probit estimates of current attendance

	Eq (1)				Eq (2)			
Variable	Coefficient	Robust standard error		Marginal effect	Coefficient	Robust standard error		Marginal effect
Age	1.7323	0.1566	***	0.5767	1.7546	0.1576	***	0.5838
Age suared	-0.0890	0.0083	***	-0.0296	-0.0903	0.0083	***	-0.0300
MPCE	0.0025	0.0007	***	0.0008	0.0021	0.0007	***	0.0007
Father's education level	0.0264	0.0190		0.0088	0.0307	0.0192		0.0102
Mother's education level	-0.0081	0.0330		-0.0027	-0.0064	0.0332		-0.0021
Parental motivation	0.4355	0.1337	***	0.1366	0.4298	0.1329	***	0.1348
Slum development	0.0013	0.0409		0.0004	0.0116	0.0410		0.0039
Girl	0.1253	0.1159		0.0414	0.2953	0.1307	**	0.0966
OBC	-0.3585	0.2066	*	-0.1258	-0.2871	0.2202		-0.0998
SC/ST	-0.1423	0.1911		-0.0479	-0.1363	0.1935		-0.0458
Muslim	-0.3454	0.2051	*	-0.1203	-0.2652	0.2185		-0.0915
Migrant	-0.5382	0.1531	***	-0.1951	-0.0096	0.2324		-0.0032
Migrant girl					-0.9421	0.3163	***	-0.3565
Muslim migrant					-0.3796	0.4144		-0.1378
Migrant lower caste					-0.4149	0.4290		-0.1516
Constant	-8.3765	0.7939	***		-8.4245	0.7988	***	
MPCERES	0.0009	0.0004	**		0.0009	0.0005	**	
No. of observations		678				678		
Pseudo R^2		0.2454				0.2576		

Notes: To calculate the marginal effects, the mean value was used for continuous variables and a value of zero was used for dummy variables. MPCERES denotes generalised residuals computed from MPCE estimates by OLS regression (see Table 7-6). ***, ** and * represent statistical significance at 1%, 5% and 10% respectively.

In contrast to evidence from the existing literature (e.g. Behrman et al., 1999) suggesting that parental education – particularly that of the mother – plays a significant role in a child's schooling, the present study did not find any significant positive effect of either maternal or paternal education. This is attributable to the fact that parental education level in the study sample tends to be low. In particular, the overwhelming majority of mothers are illiterate (81.4%), the mean length of maternal schooling being only one year (with a 2.3 standard deviation).

Thus, this study found that ostensibly, mothers do not have much say in a household's decision to educate its children. Nevertheless, it appears that higher parental motivation plays a significant role. In fact, motivated parents tended to desire that their children attain higher education and indicated this clearly in survey responses. Other parents – including those of non-attending children – who were vague or uncertain about goals for their offspring, tended to answer in response to the question of how well educated they wished them to be, "As much as possible," rather than rationalising their child's non-attendance by expressing negative perceptions of the education system.

The existing literature on education in rural India suggests that children in more developed villages tend to be enrolled in school (e.g. Dostie and Jayaraman, 2006). Nevertheless, in urban slums, the location of the settlement was typically found to be insignificant in terms of current attendance. However, the geographical distribution of government schools in urban areas is not as uneven as it is in rural areas. The effect of urban slum communities is also limited because such neighbourhoods are generally less close-knit than their rural counterparts. It is therefore possible that norms regarding the right of the child to education are not easily disseminated into every part of all slums. Even if some parents observe neighbours sending their children to school, comparative

household wealth and other factors may still prevent some children from enrolment.

Discrimination against girls was not found to be expressed in school attendance. In fact, girls' attendance tended to be more widespread than that of boys. The NSS (2007/08) also shows that there is little gender disparity in Delhi as a whole. However, in slums, boys were found to be more susceptible to negative peer influence. The study found a noticeably large number of gangs of boys who roamed aimlessly about such areas, even during school hours. Members of these groups might have been playing truant or might not have gone to school at all. Parents were aware of such behaviour and expressed concern about their children. For example:

> I am embarrassed about the environment here and that the majority of people are drunk. My children started to drink at a very young age. Except for my eldest son, they wander around with no purpose. Unfortunately, the children do not listen to us and make fun of us by calling us illiterate (Bhushan – father of 18-, 15-, 13- and 10-year-old boys).

> My children have adopted bad habits since we moved here (Pankaj – father of 8-, 7- and 5-year-old children).

> My children leave home for school but they go and play elsewhere instead of going to school. The teachers complain to us but we do not know what to do (Kushal – father of three school-age boys).

According to education history data gathered in the survey, girls (73.3% of ever-attended females) tend to have benefitted more widely from incentive schemes such as free textbooks and uniforms than boys (69.9%). None of the dropout girls had ever been rewarded by an incentive scheme. Therefore, because girls who went to school were not necessarily from economically wealthier households than their male counterparts, incentives might have been one of the reasons why girls were more likely

to attend school than boys.

A lower caste affiliation – being from an SC or ST – was found not to have a significant negative correlation with attendance or schooling in the long term. This might be because the proportion of children benefitting from incentive schemes was higher among those from SC/STs (77.2% of ever attended SC/STs) than those from general castes (63.4%), OBCs (67.5%), or Muslims (70.3%). Yet, because a lower proportion of OBC children than their SC/ST counterparts were rewarded with an incentive, they were more likely to drop out than general caste children, even though they were not significantly disadvantaged in terms of initial enrolment.

Being a Muslim was found to have a largely negative effect on current attendance, meaning that such children were more likely to drop out in particular, and disadvantaged in terms of school attendance remained constant even after measures including a wide range of incentive schemes were taken. Muslims seemed to encounter structural obstacles to their children's education access, such as a discriminatory attitude in the classroom.

Contrary to the typical situation in rural areas, the effects of social discrimination (being a child from an SC/ST or a girl in general) were not found to be clearly manifested in sample slum children's education. However, migrant children were less likely to go to school than their non-migrant counterparts. Migrant girls were found to be particularly discriminated against with regard to initial enrolment and current attendance, while migrant Muslims were disadvantaged in terms of initial enrolment. It is notable that girl child coefficients are positive for both initial enrolment and current attendance. This implies that gender bias is attached to girls from migrant families rather than the fact

that they are female per se. Finally, it emerged that the position of migrant Muslim children was doubly bleak as they were burdened by both residential and religious inequalities.

7.5.3. Discussion: Why are Migrant Children Educationally Disadvantaged?

It has been established that migrant children are disadvantaged in terms of school attendance. Why is this so? The existing literature holds that there are two main obstacles to access for children resident in Indian urban slums. Firstly, migrant slum dwellers tend to make occasional prolonged visits to their home villages, which has a negative effect on school attendance (Aggarwal and Chugh, 2003; Chugh, 2004; Jha and Jingram, 2005). Secondly, it appears that migrant slum children in particular also face difficulty in understanding the language spoken at school because it tends to be different from their mother tongue (Jha and Jingram, 2005). Evidence suggests that language proficiency strongly affects academic performance (Dustmann et al., 2010; UNESCO, 2010). However, in government schools in particular, administrators and teachers do not generally make special provision for children whose mother tongue differs from the language of instruction.

Because adult education levels tend to be low in slum households, help cannot be expected at home either. This leads migrant children to become disinterested in their studies and discourages them from attending school regularly because they do not understand what is being taught. It was found by the NSS (2007/08) that disinterest in lessons (21.8% of dropout children) was the most common reason for school withdrawal amongst Delhi children aged 5 to 14 years. Although this phenomenon is a complex process, it seems that unfamiliarity with the language of instruction is a major determinant of such demotivation.

However, analysis of the present study's sample supports neither of the reasons for non-attendance suggested in the existing literature. Firstly, if the contention that a lengthy visit to the home village prevents some slum children from attending school is considered, although the study found that 18.1% of children in the total sample had visited their parental home village during the previous year, this was the case for only 13.1% of those who were currently out of school. Similarly, of all those who had visited their parents' home village during the previous 12 months, the average length of stay was 23.3 days, with a longer sojourn of 24.2 days on average amongst those who were currently attending school. Data are limited to children's visits during the previous year; however, the survey indicates that a significant number of households tried to avoid visiting their home villages as much as possible during term time. It may thus be concluded that even quite a prolonged visit to the parental home village was not a major obstacle to elementary education amongst the slum children under study.

Secondly, it has been suggested that the inequality experienced by migrants stems in part from a language barrier. Hindi was the medium of instruction for all school-going children in the sample regardless of school type or grade. Moreover, 91.6% of those in the sample spoke Hindi at home. This is because migrants to Delhi typically come from northern states in which Hindi is widely used at home or at the very least as a lingua franca. It can therefore be inferred that language per se is unlikely to be a major barrier to education access or academic attainment amongst Delhi slum children.

Why, then, are migrants disadvantaged in gaining access to education? It emerges that a lack of preparedness among those of pre-school age is one of the primary reasons for the inequality in formal education experienced by migrant children. Analysis of data

gathered in the present study shows that the out-of-school problem is linked more closely to never-attended children than dropout children. In fact, in the sample, the proportion of never-attended migrant children (29.5%) is higher than the corresponding proportion of those born in Delhi (22.5%), and none of the five-year-old migrant children under study are in school.

Recent education research in India indicates that pre-school interventions such as nutrition, health, and basic learning programmes play an important role in the life cycle of the child (Ramachandran et al., 2009). Such initiatives can raise parents' awareness of the importance of preparing their children for primary school and beginning their formal education at the standard age. However, the present study found that only 14.3% of children born outside Delhi had attended nursery school or *anganwadi* centres under Government of India Integrated Child Development Services, while 20.9% of those born in Delhi had benefitted from such initiatives. *Anganwadi* centres for early childhood development include pre-primary schooling, health, nutrition, and immunisation programmes, and are required to identify the target group (children under the age of six) by listing households in the local area.[80] This means that all children of pre-school age should, as a matter of policy, be identified. However, very low attendance was still found. It seems that the initiative might not be appropriately implemented. It is also possible that some children –migrants in particular – are not included on *anganwadi* lists.

Another significant cause of non-attendance transpires to be the school admission process, especially in terms of the narrow window in which parents or guardians can

[80] Ministry of Women and Child Development (http://wcd.nic.in/icds.htm) (accessed on 20 October 2011).

apply for a child's enrolment. It was found that slum parents tended to be unaware of the requirement, unavailable, or unable to apply to a school during such a specific and short period of time. Households also faced delay in obtaining a birth certificate or alternative proof of identification (e.g. an affidavit), which was mandatory for admission to all government schools in Delhi at the time of the survey.[81] One participant in the household survey explained:

> My children are not in school because we cannot provide their date of birth. My brother, after several gruelling months, succeeded in getting a signature from a member of the Legislative Assembly in our constituency to admit the children to school, which later turned out to be invalid for school admission (Sunita – mother of three school-age children).

Survey data show that on average, only 34.0% of children in sample slum households have a birth certificate, and the rate is particularly low (19.4%) for never-attended children. Similarly, the proportion of children who have a birth certificate is just 20.8% of those born in Uttar Pradesh/Uttarakhand, and a mere 12.0% of those whose state of origin is Bihar/Jharkhand. These figures are lower than corresponding statistics for those born in Delhi, with 36.5% of this group being in possession of a birth certificate. This finding reflects the fact that migrant children were typically born in their parents' home village, where there might have been weak enforcement of the requirement to register a birth with the civil authorities. This tendency is similar to that found by UNESCO (2009), which cites cases of Chinese child migrants to urban areas who are less likely to be able to access formal education because, under the official enrolment system, only registered inhabitants are admitted to urban schools in the district.

[81] Subsequent to this study, it was ruled that declaration of the age of the child by a parent or guardian shall be proof of the age of the child for the purposes of admission to a school under the Right of Children to Free and Compulsory Education Rules, 2009. However, as of 2010, anecdotal evidence suggests that compliance with this regulation is at the discretion of the school head.

However, unlike the case with China's rigid education system, in India, it is lack of awareness of the importance of birth registration that leads to adverse consequences in terms of school admission. Worse still, if parents apply to a school late, even after obtaining all the necessary documentation, anecdotal evidence suggests that children from slums are less likely to be admitted than those from other city communities.[82]

7.6. The Cost of Schooling

One of the main reasons why slum children remain out of school is the financial deterrent (see tables 7-3 and 7-4). Analysis of education expenditure thus provides an important indication of household ability to maintain children's schooling over the long term. The cost of education is often divided into direct costs such as school fees, and indirect costs such as lost potential income to the household. However, this section limits its focus to direct costs.

7.6.1. Overview of Schooling Costs

According to the NSS (2006/07), education accounts for 7.0% of household MPCE in urban Delhi, while in the present study's slum household sample it only represents 2.7%. The implication is that in slum households, there is little money left over for schooling purposes after meeting the needs of food and fuel expenditure (see Chapter 6).

It is widely acknowledged that government education in India is not cost free, even at the elementary level (e.g. Tilak, 1996). Tables 7-9 and 7-10 show the average annual education expenditure on all children in the sample regardless of current attendance status (Table 7-9), and that excluding those out of school (Table 7-10). Analysis reveals

[82] This point was made in a focus group discussion in a non-surveyed slum in November 2008.

that more is spent on girls than on boys, both in terms of the whole sample and those currently attending school only. However, there is no significant difference in expenditure across genders in the full and subsample (see tables 7-9 and 7-10). It thus seems that slum girls do not suffer discrimination in terms of expenditure.

Table 7-9 Education expenditure incurred by sample slum children aged 5 to 14 (INR)

Variable	No. of observations	Mean	Std. Dev.	Min.	Max.	
Girl	296	553.97	926.86	0	5500	
Boy	422	490.79	772.18	0	5750	
General caste	113	866.81	1088.83	0	5750	
SC/ST	265	541.66	918.41	0	5500	***
OBC	151	350.10	596.80	0	4595	***
Muslim	178	366.97	545.97	0	3220	***
Migrant	112	449.24	763.91	0	3720	
Non-migrant	604	530.27	853.14	0	5750	
Total	717	516.87	839.45	0	5750	

Notes: Expenditure includes that on currently out-of-school children. *** indicates that differences in mean expenditure by caste/religion (general castes being the reference group) are statistically significant at 1%. Data on expenditure for one child is missing.
Source: The author's survey.

Table 7-10 Education expenditure incurred by sample slum children aged 5 to 14 currently attending school (INR)

Variable	No of observations	Mean	Std. Dev.	Min	Max		Attendance ratio (%)
Girl	211	726.28	1004.36	50	5500		71.2
Boy	277	696.10	816.32	30	5750		65.9
General caste	90	893.00	1043.24	85	5750		78.4
SC/ST	182	767.96	1021.50	30	5500		73.1
OBC	98	525.36	674.44	50	4595	**	64.6
Muslim	109	582.76	600.37	100	3220		61.2
Migrant	66	750.23	874.12	110	3720		58.9
Non-migrant	422	702.73	906.65	30	5750		69.9
Total	488	709.16	901.59	30	5750		68.1

Notes: ** indicates that differences in mean expenditure by caste/religion (general castes being the reference group) are statistically significant at 5%.
Source: The author's survey.

In terms of caste and religion, general caste parents are likely to spend more on education than those with SC, ST, OBC or Muslim backgrounds. It seems that children from lower social strata – i.e. SCs, STs, OBCs or Muslims – are more likely to be disadvantaged in terms of education expenditure (Table 7-9). However, when the analysis is confined to those children currently attending school, the difference in average expenditure across caste and religion is less marked, and only OBCs are likely to spend significantly less on education than general castes (Table 7-10). Similarly, parents of 'non-migrant' children born in Delhi tend to spend more on education than those of 'migrant' children born in other areas of the country (Table 7-9). However, again, the difference between migrants and non-migrants in terms of average expenditure in both the full and subsample is statistically insignificant (tables 7-9 and 7-10).

For further details of education expenditure, Table 7-11 shows the average annual expenditure on sample children in terms of schooling level and items required during the 12 months preceding the study. Such expenditure at primary school (grades 1–5), middle school (grades 6–8), and secondary school (grades 9–10) is INR 446.2, INR 1,431.6 and INR 2,723.8 respectively. The higher the school grade, the higher the cost of education. Furthermore, as Table 7-11 shows, annual average education expenditure at primary level on children attending government school (INR 404.1) is significantly lower than that incurred by children going to private school (INR 1,065.7). This private education cost per child is on average 2.9% of total monthly household expenditure, while the corresponding figure for government schooling is only 1.2%.

It should also be noted that average education expenditure amongst sample slum children is far lower than that in Delhi as a whole as revealed by the NSS (2007/08) for

the same year. Indeed, the average expenditure at primary school level in the sample is only one tenth that of the latter. This is also consistent with the finding discussed in Section 7.3.2. that when sample slum children did attend school, they tended to be enrolled in a government institution other than in a few exceptional cases in which they were likely to attend a low-fee private school.

Table 7-11 also shows that expenditure on all items generally increases as a child progresses through the education levels. Such escalation can be explained in some cases as follows. Firstly, uniforms are supposed to be provided free to all pupils in government school. However, not all pupils in such schools benefit from this scheme. Analysis reveals that during the 12 months preceding the study, 75.5% of sample children attending government school were provided with the means of procuring a uniform. Yet, pupils in the middle grades did not receive such benefits as often as those in the lower grades.

Secondly, textbooks should, as a matter of policy, be provided free of charge to all children in government school. However, again, it was found that only 75.7% of sample government school pupils received free textbooks. The same pattern can be observed as that with uniforms, i.e. pupils in middle and secondary grades were less likely to get free textbooks. [83]

Thirdly, expenditure on meals and transport increases sharply at the secondary level. At

[83] The relative high cost of stationery– particularly exercise books, pens and pencils – in comparison to other school equipment can be attributed to the local practice of rote learning with regard to lessons, homework and/or extra tuition. Yet, subsidised stationery was only available to pupils in grade 6 and above, and even then, parental income had meet certain conditions, and a child's previous year's advance record, caste and religion were all taken into account (see Appendix 1).

the time of the study, free midday meals were only provided up to middle school level in government institutions. In terms of transport, children attended school further from home when they reached the upper grades: it was found that the average distance was 0.4 km at the primary level, 1.0 km at the middle school level, and 1.5 km at the secondary level. Even though all secondary school pupils in the sample attended government institutions, approximately a third of them travelled by bus.

Table 7-11 Average annual expenditure per child by item in 2007/08 (INR)

Item	Primary Grades 1–5	Middle Grade 6–8	Secondary Grades 9-10
Tuition and other required fees	100.44	169.53	251.88
Uniform & other clothing	62.95	254.63	293.75
Stationery, exercise books, textbooks and other books	225.77	661.79	962.50
Meals & transportation	14.22	54.82	300.00
Coaching & personal tuition fees	20.63	267.21	800.00
Parent Teacher Association fees	20.23	22.79	106.25
Other (e.g. school excursions)	1.92	0.84	9.36
Total	446.16	1431.61	2723.75
Total incurred by children attending government school	404.10	1438.32	2723.75
Total incurred by children attending private school	1065.65	800.00	-
No. of observations	370	95	16
NSS (Delhi)	4,760.15	5,938.12	10,039.16

Notes: Numbers of pupils attending government school at primary, middle and secondary levels are 347, 94 and 16 respectively; those attending private school at primary middle and secondary levels are 23, 1and 0 respectively.

Source: National Sample Survey 2007/08, Schedule 25.2 unit level data; the author's survey.

Finally, coaching and personal tuition costs are high; although only 13.7% of school-going children in the sample (13.8% of those attending government school) received extra lessons. Personal tuition tended to be more common amongst pupils in the higher grades: 66.7% in grade 8, 72.7% in grade 9, 50.0% in grade 10, and 100% in grade 11. Moreover, the cost increased the higher the grade. Nevertheless, such coaching seemed to be essential for the improvement of academic performance, and it appears that those who received it were more likely to survive to the upper grades. Personal tuition can thus be viewed as a necessary cost of a successful government

school education.

7.6.2. Household Expenditure

A critical issue in the limited existing literature on education expenditure at the household level in developing countries is intrahousehold distribution. On the one hand, some studies argue that there is a bias against girls in the allocation of such expenditure (Cameron and Worswick, 2001; Kingdon, 2005); but, on the other, no such discrimination is identified in other studies (Tilak, 2002; Himaz, 2010). Yet another found inequity at the middle and secondary school levels but not at the primary level (Aslam and Kingdon, 2008). It has been suggested that in India, bias against girls in terms of intrahousehold education expenditure is more prevalent in less developed regions and those families demonstrating lower education levels (Lancaster et al., 2008), and in rural areas (Azam and Kingdon, 2013). What would seem to be beyond doubt is that discrimination against girls is more apparent in a tight economic environment, meaning that slum households are likely to spend more on the education of sons than daughters.

Since education expenditure among slum households has not to the author's knowledge been previously empirically researched, this section examines the correlation between household characteristics and education expenditure. An analysis of gender bias, that is, whether girls are disadvantaged in terms of resource allocation, is also undertaken. An attempt is made to explain the socio-economic characteristics of the household that affect education expenditure on children aged 5 to 14 years. In this regard, the underprivileged in terms of caste, religion and migration are also examined.

The first dependent variable, which was analysed using a probit model, assigns a value

of 1 if the household incurs any education expenditure and 0 if it does not. The second dependent variable, which was analysed through OLS regression, is monthly education expenditure on children aged 5 to 14 years as a proportion of total household monthly expenditure. Both regressions incorporate all sample households that have children aged between 5 and 14, including those in which no children of this age range are currently attending school.

Explanatory variables include household characteristics, such as size, proportion of boys aged 5 to 14, proportion of girls aged 5 to 14, and proportion of children aged 5 to 14 born outside Delhi. Household wealth, that is MPCE excluding education expenditure, is assumed to play an important role in family spending on education in India (e.g. Tilak, 2002; Panchamukhi, 2005). The education levels of both household head and their spouse are also included. Households with higher parental education levels are expected to spend more on schooling.

The other variables are caste or religion characteristics: SC/ST (1 for SC/ST and 0 otherwise), OBC (1 for OBC and 0 otherwise), and Muslim (1 for Muslims and 0 for other religions) with general caste members as the reference group. Degree of development in the slum clusters under study is also added as a proxy for the location of slum clusters.

The results are shown in Table 7-12. As expected, household wealth has a positive correlation with decisions in terms of spending on education. Interestingly, the proportion of girls but not that of boys positively affects household education expenditure. This means that households are more likely to spend more on education when the proportion of girls rather than that of boys increases. This is consistent with

the fact that the attendance ratio for girls is higher than that for boys. In terms of disadvantaged households with regard to caste and religion, OBCs are significantly less likely to spend on education than general caste households. The education level of the household head – the children's father in most cases –correlates with education expenditure positively, while the education level of the head's spouse – generally the mother of the children – does not correlates with it significantly. The particular slum – and its degree of development – in which a household is located is largely immaterial in terms of deciding what households spend on education. These results are in the main consistent with the analysis of school attendance in the previous section.

In respect of monthly education expenditure as a proportion of total outgoings, the coefficient sign for household economic wealth is statistically insignificant. Similarly, the proportion of girls in the household loses its significant positive correlation with expenditure. This implies that actual household spending on girls' education is not necessarily higher than that on boys. With regard to caste and religion, all OBC, ST/SC, and Muslim households are significantly less likely to spend on education than general caste families. The household head's education level plays a significant positive role in education expenditure, while that of their spouse tends to reduce it.

All those households with children aged 5 to 14 years were included in the analysis of expenditure regardless of the circumstances. However, spending might be reduced if children benefit from schemes that provide free textbooks, uniforms or other items. Since data on expenditure at the individual level are available, I will now turn to the analysis of this factor.

Table 7-12 Regression results for household education expenditure

	Education expenditure (1 = any expenditure; 0 = no expenditure)				Monthly education expenditure for children aged 5 to 14 as a proportion of total household expenditure (in log form)		
Dependent variable	Coefficient		Robust standard error	Marginal effect	Coefficient		Robust standard error
Log of MPCE excluding education expenditure	0.8989	***	0.3203	0.2126	-0.1175		0.1837
Household size	0.1550	**	0.0690	0.0367	-0.0366		0.0434
Proportion of boys aged 5 to 14	1.7604		1.0767	0.4163	-0.2235		0.4984
Proportion of girls aged 5 to 14	1.8886	*	1.0457	0.4467	-0.0884		0.4848
Proportion of migrant children aged 5 to 14	-0.2367		0.2610	-0.0560	-0.0678		0.1899
OBC	-0.6146	*	0.3232	-0.1698	-0.8508	***	0.2083
SC/ST	-0.4532		0.3003	-0.1123	-0.3490	*	0.1790
Muslim	-0.3158		0.3368	-0.0814	-0.3643	*	0.2005
Household head's education level	0.0776	***	0.0303	0.0184	0.0638	***	0.0181
Spouse's education level	-0.0594		0.0439	-0.0141	-0.0507	*	0.0277
Slum development	-0.0062		0.0580	-0.0015	0.0392		0.0386
Constant	-7.1073	***	2.3620		-2.5821	*	1.4681
N	288				234		
Estimation method	Probit				OLS		
R^2					0.1376		
Pseudo R^2	0.1280						

Notes: ***, **, * indicate significance at 1%, 5% and 10% respectively. Marginal effects were calculated using the mean values for continuous explanatory variables, while the binary variables were set to zero.

7.6.3. Individual Expenditure

Analysis of individual expenditure was conducted in the following way. The dependent variable is determined by an equation comprising (1) individual expenditure on all children in the sample (including those whose expenditure is zero); (2) education expenditure on a child during the previous 12 months = 1, and no such expenditure = 0; and (3) individual expenditure on all children currently attending school. The third equation is included because as children in school tend to incur higher expenditure than their out-of-school counterparts, the result might be biased if the latter were included in the equation.

The possibility of sample selection bias is taken into account by employing Heckman two-step estimations. The equation (2) above is used for this purpose. The explanatory variables for the first two equations are household MPCE excluding education

expenditure in logarithm form, age, girl (1 for female and 0 for male), migrant (1 if a child was born outside Delhi and 0 if a child was born in Delhi), OBC (1 for OBC and 0 for non-OBC), SC/ST (1 for SC/ST and 0 for non-SC/ST), Muslim (1 for Muslim and 0 for other religions), father's education (years), mother's education (years), and slum development (degree).

Explanatory variables for the third equation (individual expenditure on children currently attending school) comprise the aforementioned ones except for age, together with grade (1 to 11); private school (1 if a child attends private school and 0 otherwise); tuition (1 if a child has received personal tuition during the previous 12 months and 0 otherwise); and incentive (1 if a child has been awarded any incentives during the previous 12 months and 0 otherwise). Rising grade attainment, personal tuition, and private schooling are expected to increase expenditure on education; whereas incentives such as free provision of uniform, textbooks, etc., membership of disadvantaged social group, and being a migrant are expected to reduce it. Being a girl can determine either an increase or decrease in expenditure.

The results are shown in Table 7-13. When regression is conducted on all children in the sample (see equations 1 and 2), greater household wealth is commensurate with increased education expenditure, which also tends to rise with a pupil's age. Those from disadvantaged social groups tend to spend less than general castes. The analysis also indicates that migrant children are likely to spend less on education than those with non-migrant children. The father's education level increases both the probability of any expenditure on schooling and the extent of actual spending. It is worth noting that even though girl coefficients are positive, they are statistically insignificant. It therefore seems that girls' advantages in terms of attendance are negated when it comes to

individual expenditure.

When the analysis is confined to school-going children (Equation 3), it is evident that household wealth increase education expenditure. Private education tends to cost more than government education. It also emerges that personal tuition increases education expenditure, while incentives tend to reduce it. None of the underprivileged social group dummies are statistically significant. It seems that these children are disadvantaged in terms of expenditure due to the prevalence of non-attendance (zero expenditure).

Households are not more likely to spend a greater amount on a girl's education than that of a boy. The proportion of females currently attending school who have benefited from any kind of incentive is 82.0%, which is higher than that for males (77.7%). Moreover, girls (15.2%) are more likely to receive personal tuition than boys (12.6%). When it comes to adding the interaction term: girls and incentives (1 if a girl has benefitted from any kind of incentive during the previous 12 months and 0 otherwise), the coefficients is insignificant. Similarly, when the interaction term girls and tuition (1 if a girl has received personal tuition during the previous 12 months and 0 otherwise) are added, the coefficient is also insignificant.

Higher attendance rates and a greater proportion of beneficiaries of incentives and personal tuition notwithstanding, households do not spend significantly more on girls than boys among school-going children.

Table 7-13 Regression results for individual education expenditure

	Eq (1) Monthly education expenditure on all children in sample (OLS)			Eq (2) Education expenditure on a child during the previous 12 months = 1; no such expenditure = 0 (Probit)			Eq (3) Monthly education expenditure on all children currently attending school (Probit + OLS)		
Dependent variable	Coefficient		Robust standard error	Coefficient		Robust standard error	Coefficient		Robust standard error
Log of MPCE excluding education expenditure	42.1742	***	7.3805	0.8192	***	0.1708	58.8381	***	22.5197
Age	6.7642	***	1.0322	0.0108		0.0212			
Girl	4.5308		4.7673	0.1613		0.1098	8.5776		6.2833
Migrant	-14.1647	**	5.6802	-0.4208	***	0.1420	-20.3386		13.0520
OBC	-30.4972	***	8.9039	-0.6585	***	0.1935	-26.5210		17.9013
SC/ST	-9.1816		9.1398	-0.3786	**	0.1812	-5.9567		11.8068
Muslim	-21.1366	**	8.5305	-0.4862	***	0.1943	-14.2022		14.0975
Father's education level (years)	3.4006	***	0.6292	0.0701	***	0.0156	2.5996		1.7293
Mother's education level (years)	1.8188		1.4940	-0.0003		0.0311	2.1640		1.4397
Slum development	0.8585		1.3650	-0.0011		0.0367	-1.8876		1.6669
Private school							52.2806	*	15.6188
Incentive							-17.3979	***	9.7315
Tuition							69.2009	***	12.6275
Grade							11.9587		2.0288
Constant	-282.9042	***	47.3964	-4.3336	***	1.0531	-419.2730	**	202.5963
Sample bias correction term							187.5375		173.4941
R^2	0.2546						0.5106		
Pseudo R^2				0.1264					
N	699			699			502		

Note: ***, ** and * indicate significance at 1%, 5% and 10% respectively.

7.7. Basic Learning: Can Children Write Their Own Name Correctly?

The quality of education is an important issue. Although it is not confined to the measurement of academic achievement alone, the Indian school system tends to emphasise such performance (see Section 7.4.1.). Academic learning has been a growing concern in recent years, as attendance in itself does not necessarily mean that pupils are actually learning anything in the curriculum (Pratham, 2013).

This study's field survey did not include an academic test, but it did ask parents if their children could write their own name in any language. Moreover, if children were at home – which was usually the case – they were asked to write their name to verify their writing skills. Of all the children in the sample (718), only 465 (64.8%) were able to write their name accurately. Even among those currently going to school, it was not uncommon to find children who were unable to perform this simple task with any degree of proficiency. The most senior pupil who could not write their own name was a

boy in grade 8 of government school.

Learning to write one's name is just the beginning of education; it is an ability that can be acquired even by children who have never attended school, and those who have dropped out still retain writing skills. At the same time, writing one's own name or signature is a necessary skill in post-schooling daily life. To correlate children's ability to write their name with child characteristics in terms of the whole sample, a probit analysis was conducted. The dependent variable was assigned a value of 1 if a child could write their own name accurately and 0 if they could not. Explanatory variables are detailed in Table 7-14, other than those already provided in Table 7-5.

Table 7-14 Basic learning: variable definitions

Variable	Definition	Mean	Std. Dev.
Never-attended	Child never attended school = 1; child attended school or ever attended school = 0.	0.24	0.43
Dropout	Child dropped out = 1; child attended school or never-attended school = 0.	0.08	0.27
Private school	Child currently attending private school = 1; child not currently attending private school = 0.	0.05	0.22
Hindi	Child speaks Hindi at home = 1; child speaks another language at home = 0.	0.92	0.28
First generation learners	Child for whom neither parents ever attended school = 1; child for whom at least one parent attended school = 0.	0.42	0.49
Maternal illiteracy	Mother illiterate = 1; mother literate = 0.	0.81	0.39
House index	House size in square feet multiplied by the following: temporary materials (*kuchcha*) = 1; either roof or wall permanent materials (semi-*pucca*) = 2; permanent materials (*pucca*) = 3.	222.42	131.39

Note: See Table 7-5 for other explanatory variables.

My hypothesis comprised the following assumptions: children who have never attended school and those who have dropped out are less likely to be able to write their name, while pupils who attend private school are more likely to be able to do so because such

institutions are often perceived by parents to provide a better quality of education.[84] Older children are more likely to be able to write their name. Migrant children and the socially disadvantaged in terms of caste, gender and/or religion might have difficulty in writing their name. Parental education level and motivation, home environment in terms of quality of housing, and speaking Hindi at home all have a positive association with children's ability to write their name. The overall level of slum development could also have a positive relationship with basic learning.

Table 7-15 shows the results of the analysis. As expected, both never-attended and dropout children are less likely to be able to write their name. Interestingly, the private school pupils under study are in fact significantly less likely to be able to write their name (see Equation 1). This can plausibly be explained by the fact that sample children at private school tend to be in the lower grades, that is, too young to have acquired writing proficiency. At the same time, the quality of private schools accessible to slum children – presumably low-fee unrecognised institutions – is not necessarily very high. In fact, surveyed slum parents were not always happy with the quality of education in such schools. For example:

> My children have been admitted to a private school, but that school is not good for learning. We are not planning to send them to another religious charity school (Rajiv Kumar – father of three private school-going children).

It was further investigated whether age with regard to never-attended children, those who had dropped out, and those who attended private school influenced the ability to write one's name. When interaction dummies in terms of (1) age and never-attended; (2)

[84] Since there is no statistically significant difference between mean household MPCE in respect of children attending private school (INR 625) and that on their counterparts at government institutions (INR 578), in this analysis private school attendance is assumed to be an exogenous variable.

age and dropout; and (3) age and private schooling were added,[85] only older children who had never been to school were still found to be significantly disadvantaged in the ability to write their name (Equation 2).

The coefficient for older children who have dropped out of school is negative but statistically insignificant. It is reasonable to suppose that younger children, who are presumed to have dropped out at an early age, withdraw from school without having acquired and retained any basic writing skills; while some older dropout children, who might have studied for longer, retain their literacy skills. In fact, all those who have dropped out at grade 5 and above are able to write their name. It is intriguing that the coefficient for older children at private school is positive (although statistically insignificant); the slight effect of private education – even if it is at an unrecognised school – is thus observed in those who remain in school up to the higher grades.[86]

First generation sample slum dwellers tend not to be able to write their name, which implies that children whose parents have never attended school are disadvantaged even before they start. It seems that parental attention from the beginning plays a very important role. When the dummy variable 'first generation learners' is replaced by the variables 'paternal schooling years' and 'maternal illiteracy' (1 if the mother is illiterate and 0 if she is literate), the father's education level has a significant positive correlation with his children's writing ability; while an illiterate mother has a significant negative correlation (Equation 3).

[85] All three dummy variables were standardised.

[86] Slum children are less likely to transfer to private from government school at the higher grades, while the reverse is much more common due to inability to pay the fees. Thus, if a child goes to a private school, they are more likely to have done so from grade one.

A literate mother can play an important role in her children's basic learning through taking an interest their homework. Although, according to the analysis of school attendance in Section 7.5, mothers do not seem to have a strong say in their children's education, literate mothers can at least take an interest in it. In contrast, illiterate mothers are often frustrated at their inability to do so. For example:

> I do not understand what my children are studying. I cannot help or monitor them (Sangeeta – mother of three school-going children).
>
> Both my husband and I are illiterate. We cannot teach our children at home (Rohini – mother of six children).
>
> When the children's teachers ask parents to come to the school, I cannot go. I am illiterate and feel ashamed in front of the teachers (Manisha – mother of four children).

Among disadvantaged children, membership of an SC/ST or OBC, or being a Muslim has a significant negative association with the ability to write one's name. This is attributable to the fact that the parental education level is lower with regard to such children. For example, the mean length of paternal education is 4.4, 4.0, 3.1 and 2.6 years in terms of those from general castes, OBCs, SC/STs, and Muslims respectively. The proportion of children whose mothers are illiterate with regard to general castes, OBCs, ST/SCs, and Muslims is 62.1%, 86.7%, 81.7% and 89.8% respectively. It is notable that in instances in which girls are more likely to attend school than boys, they are not more likely to be able to write their name. In terms of home environment, standard of housing has a significant positive correlation with children's ability to write their name. A reasonable quality of housing and a suitable study space thus seem to be necessary for the promotion of learning.

Table 7-15 Probit analysis of ability to write one's name

	Eq. (1)		Eq. (2)		Eq. (3)	
Variable	Coefficient	Marginal effect	Coefficient	Marginal effect	Coefficient	Marginal effect
Never-attended	-2.0818 ***	-0.7019	-2.4178 ***	-0.7729	-2.1182 ***	-0.7101
	(0.2049)		(0.1989)		(0.2036)	
Dropout	-0.5319 **	-0.2005	-0.9312 *	-0.3442	-0.5533 **	-0.2091
	(0.2479)		(0.5115)		(0.2460)	
Private school	-0.7586 **	-0.2906	-0.6383	-0.2316	-0.7783 **	-0.2985
	(0.2985)		(0.4592)		(0.3157)	
Age	0.2209 ***	0.0767	0.2713 ***	0.0855	0.2281 ***	0.0794
	(0.0287)		(0.0369)		(0.0289)	
Girl	-0.0582	-0.0202	-0.0338	-0.0107	-0.0672	-0.0235
	(0.1317)		(0.1344)		(0.1315)	
SC/ST	-0.6386 ***	-0.2279	-0.6985 ***	-0.2306	-0.5857 **	-0.2092
	(0.2455)		(0.2466)		(0.2502)	
OBC	-0.7529 ***	-0.2804	-0.7522 ***	-0.2640	-0.7049 ***	-0.2624
	(0.2466)		(0.2485)		(0.2534)	
Muslim	-0.5388 **	-0.1971	-0.5911 **	-0.2019	-0.5038 *	-0.1841
	(0.2633)		(0.2646)		(0.2681)	
Born outside Delhi	-0.0048	-0.0017	0.1556	0.0472	-0.0236	-0.0082
	(0.1761)		(0.2015)		(0.1765)	
Hindi	0.2727	0.0996	0.2929	0.0994	0.2826	0.1036
	(0.2113)		(0.2381)		(0.2158)	
First generation learner	-0.3871 ***	-0.1359	-0.3215 **	-0.1028		
	(0.1404)		(0.1420)			
Paternal education level					0.0425 **	0.0148
					(0.0204)	
Maternal illiteracy					-0.3446 *	-0.1123
					(0.2085)	
Parental motivation	0.0107	0.0037	-0.0492	-0.0156	-0.0261	-0.0091
	(0.1545)		(0.1545)		(0.1547)	
House index	0.0012 *	0.0004	0.0014 **	0.0004	0.0012 *	0.0004
	(0.0006)		(0.0006)		(0.0007)	
Slum development	0.0352	0.0122	0.0328	0.0103	0.0350	0.0122
	(0.0471)		(0.0467)		(0.0464)	
Age* Never-attended			-0.4060 ***	-0.1280		
			(0.0816)			
Age* Dropout			-0.0442	-0.0139		
			(0.1385)			
Age* Private school			0.0281	0.0089		
			(0.0980)			
Constant	-0.9346 **		-1.3207 ***		-1.0556 **	
	(0.4539)		(0.4805)		0.4787	
No. of observations	695		695		692	
Pseudo R^2	0.4669		0.5026		0.4704	

Notes: Robust standard errors are in parentheses. ***, ** and * indicate significance at 1%, 5% and 10% respectively. Marginal effects were calculated using the mean values for the continuous explanatory variables, while the binary variables were set to zero.

Significantly, there are indications that early poor academic performance can directly correlate with a child not being permitted to remain in school. It might also intensify their own unwillingness to study – one of the main reasons why sample slum children

drop out. More importantly, it is assumed that illiterate children have unfavourable future prospects. If a child is unable to spell their own name with any degree of accuracy even when they go to school, what further learning can be expected? Consequently, they are less likely to escape from poverty in the future.

7.8. Conclusion

This chapter has focused on the factors that prevent slum children between the ages of 5 and 14 years from gaining access to education. It was found that overall school attendance in the slums under study was much lower than in Delhi as a whole. Even among those going to school, overage in grade mainly due to late admission was common. Among non-attending children, those who had never gone to school far outnumbered those who had dropped out. By considering these aspects of education in slums and the existing literature on the access to school, this chapter has discussed whether and how being poor and disadvantaged in terms of migration status, and caste, gender, and/or religion are correlated with school attendance.

On the whole, it was found that household wealth had a significant correlation with access to education, but that bias against girls and SC/STs was not clearly manifested in slum children's schooling. Nevertheless, it seems that structural obstacles did prevent Muslim children from gaining access for longer periods. Migrants are disadvantaged in terms of school attendance. In particular, migrant girls and Muslim children were disadvantaged. Contrary to the existing literature that suggests that occasional visits to migrant slum dwellers' home villages and the language of instruction barrier are major obstacles to progress, the finding in this chapter was that migrant children faced additional and greater hurdles with regard to enrolment in the first place, owing to a lack of preparedness for formal education at the pre-school stage and complex admission

procedures.

Secondly, the cost of education was investigated in the light of the hypothesis that one of the major reasons for non-attendance and withdrawal from school was lack of finance. Although education expenditure on slum children is considerably lower than that on children in Delhi as a whole, expenditure in terms of all households and individual children in the sample was examined. It was found that at household level, economic wealth tended to increase the likelihood and amount of education expenditure. Caste difference seemed to be manifested in terms of expenditure: members of underprivileged groups (SC/STs or OBCs) and Muslims were found to be likely to spend less on education.

At the individual level, it was found that amongst children who were currently going to school, incentives such as scholarships, subsidised uniforms, and free textbooks tended to reduce education expenditure, while engaging a personal tutor increased household outgoings. As expected, expenditure on private education was found to exceed that on government schooling.

The education level of the household head – generally the father of the children – was largely found to play an important role in education expenditure, while that of the head's spouse – the children's mother in most cases – did not.

The most important finding was that even though girls were able to gain access with the help of incentives and other benefits, households were not found to allocate education expenditure to females to any significant extent.

Lastly, children's basic learning was investigated, specifically whether they were able to write their own name accurately. As expected, those who had never attended school or had dropped out had not acquired the ability to write their name. Members of underprivileged groups including SC/STs, OBCs and Muslim, were not found to be disadvantaged in terms of attendance, but they lagged behind in basic learning in comparison to those from general castes. It emerged that one reason for this was that their parents' education levels were lower than those of other social groups. In fact, if neither parent had ever attended school, their children were significantly less likely to be able to write their name.

A major finding was that the efficiency with which children at private school learnt to write their name was not necessarily greater than that of those at government school. However, this was primarily attributable to the age of sample children, whose parents tended to concentrate on the lower grades when enrolling them in private school. Since the probability of being literate increased with age, the potentially beneficial effect of a private education was not manifested in pupils in the lower grades. Yet, perhaps more significantly, sending children to presumably low-fee private schools did not always mean money well spent in terms of quality of education in the slum areas under study.

So, what of the possibility of escaping poverty through education? The good news is that children from underprivileged households in terms of caste including SC/STs are not necessarily disadvantaged in respect of access to schooling during the compulsory education years (grades 1–8). However, the bad news is that such underprivileged households cannot afford to spend as much on education as general caste households, and, worse still, children from these households – including SC/STs, OBCs and Muslims – seem to fall behind in the learning process even if they do go to school.

Accordingly, access to education for children from such social backgrounds does not guarantee that they will learn adequately in school and thus improve their chances of ultimately escaping from poverty.

Therefore, it is particularly difficult for the underprivileged with regard to caste and religion to escape poverty in the present generation. Moreover, Delhi attracts large numbers of migrants, overwhelmingly from economically underdeveloped regions. It is even more difficult for households in this group to escape the poverty of the present generation through their children's schooling, since migrants are disadvantaged in terms of education access.

Chapter 8 Conclusion

8.1. Introduction

This chapter enumerates the major findings of the study; followed by a consideration of the policy implications drawn from them; and potential areas for future research. Based on a sample of 417 households in 50 notified Delhi slums, the study investigated the relationship between education and multidimensional poverty at both individual and household levels, and the influence of deprivation on children's education. In considering the poverty–education nexus and the probability of breaking the vicious circle of deprivation through schooling, a mixed methods approach in terms of data collection and analysis was employed to understand the correlation more fully.

8.2. Major Findings

The major findings of the study are discussed in accordance with the research questions as follows.

8.2.1. How and to What Extent is Education Associated with Poverty?

8.2.1.1. What Role Does Education Play in Enhancing Post-schooling Lives among Adult Slum Dwellers?

How and to what extent are adult slum dwellers educated, and what factors are associated with education level?

The overall education level of 1,156 slum dwellers between the ages of 15 and 60 who were currently not attending any education institution was found to be low; indeed, approximately half of the adult slum dwellers under study had never attended school. Even the proportion of those who had completed compulsory education as stipulated by the present law was just 16.3%. Yet, younger general caste males whose father was

educated and engaged in a ‘good’ profession tended to be more likely to be better educated. Thus, there is a difference in education level in terms of age group, gender, caste, and family background among the sample slum dwellers. However, no disadvantage in terms of educational attainment is manifested with regard to those from underdeveloped regions or rural areas.

To what degree does education enhance earnings through employment opportunities?
Sample slum dwellers’ jobs were found to be characterised by informality and instability. Very few of those in work were entitled to paid leave or had a pension scheme. Nevertheless, the correlation between schooling and participation in paid employment transpired to be complex, and better-educated individuals were not necessarily more likely to have a job than the relatively less educated.

Sample analysis of the relationship between education and employment remuneration revealed that additional years of schooling increased the earnings of slum dwellers, particularly for males. However, the return to education to the secondary level and above was found to be less rewarding than a lower level of schooling. Importantly, there is no clear indication that caste or migratory status leads to disadvantage or discrimination with regard to urban labour market access and earnings. Therefore, it may be inferred that discrimination and disadvantage arise from slum residence and/or engagement in the informal economy rather than the socio-economic status of sample male slum dwellers. Conversely, schooling was largely found to have no significant effect on female earnings. This may be associated with the fact that when slum dwelling women – particularly female heads of household – have no choice but to work, they take whatever job is available, which presumably requires only very basic education.

How do illiterate people value education as a means of poverty alleviation?

Based on interviews with slum dwellers, it emerged that lack of education led to practical literacy-related difficulty in daily life and in income-generating activities. More importantly, it was found that lack of schooling caused psychological harm and the inability to participate self-assuredly in a social context, since such individuals were overwhelmed by their own sense of inferiority. Thus, education not only played an instrumental role in generating higher earnings, but also meant a better quality of life, particularly in terms of the promotion of confidence in interactions in the public sphere. This potentially increases the capacity of the disadvantaged to participate more fully as citizens and engage on a par with their better-off counterparts in social situations.

8.2.1.2. How and to What Extent is Education Associated with Multidimensional Poverty at Household Level?

How poor are slum households, and how is poverty distributed across households?

Three concepts of poverty, namely, monetary-poverty, basic needs/capabilities, and subjective wellbeing, were examined in the survey of 417 slum households. It was found that 75.3% of the sample fell below the poverty line, as based on monthly per capita consumer expenditure (MPCE). However, the correlation between MPCE and a composite of basic needs and capabilities, as well as that between MPCE and subjective wellbeing, tended to be weak.

How and to what extent does education participation predict poverty level?

Education proved to have a positive correlation with monetary poverty at household level, whether measured by household head's level of education, average education level of adult members, level of the most highly educated member, or proportion of household members having completed at least primary education. On the other hand, a

higher level of education did not necessarily facilitate escape from non-monetary poverty – including deprivation of basic needs and capabilities – or poor subjective wellbeing. Accordingly, this thesis hypothesises that relatively more highly educated slum dwellers – thus, the better off – tend to compare their standard of living with that of non-slum dwellers, which results in lower subjective wellbeing. Nevertheless, it may be concluded that education has in all likelihood a stronger positive correlation with monetary poverty than with non-monetary deprivation.

8.2.2.How and to What Extent is Poverty Associated with Child Schooling?

8.2.2.1.What Factors Combine with Poverty to Prevent Slum Children from Gaining Access to Schooling?

Following an examination of 718 children in the sample slum households, the present study determined that household wealth affects child schooling. In contrast with the existing literature, membership of a Scheduled Caste (SC) or Scheduled Tribe (ST), or being female was not found to be a major obstacle to education access compared with previous generations. However, being Muslim and/or a migrant was found to have an adverse effect.

This thesis concludes that failure to adequately prepare pre-school-age children for formal education and a problematic school admission process are the primary obstacles to access for migrant children; a contention that departs from the existing literature, which suggest that frequent visits to the home village and inadequate language of tuition mastery are the main reasons for the exclusion of such children.

The present study found that Muslim children were less likely to go to school. Worse still, it seems that such households were less likely to send their children to private

school no matter how many years they had lived in the slum. Moreover, disadvantage in terms of attendance persisted even after controlling for parental motivation for educating children. There may thus be structural obstacles in terms of schooling for Muslim children.

8.2.2.2. What are the Costs of Schooling, and How do they Influence Participation?

As is widely acknowledged, government schooling – which the overwhelming majority of sample slum children received – is not cost free. The present study confirms this phenomenon, even though schooling expenditure incurred by slum children is much lower than that in Delhi as a whole. The principal reason for non-attendance and withdrawal from school proved to be an inability on the part of the household to finance education. Conversely, it was found that a rise in economic wealth at household level tended to increase the likelihood and amount of education expenditure.

It emerged that a wide range of assistance, such as free textbooks, subsidised uniforms, and scholarships awarded to children currently attending school, tended to reduce education expenditure; while engaging a personal tutor significantly increased the cost. Personal tuition was an essential part of a child's education if they were to achieve above average academic performance and continue schooling. Accordingly, lower expenditure adversely affected education, which, in turn, had a negative impact on the potential return in earnings for boys in particular. Importantly, unlike attendance, variations in expenditure seemed to be attributable to caste differences.

8.2.2.3. Is the Quality of Schooling that Slum Children Have Access to Sufficiently Adequate to Enable Them to Escape from Poverty in the Future?

It emerged that some sample children in school could not write their names accurately.

Members of underprivileged groups in terms of caste were not found to be disadvantaged with regard to school access, but children from SC/ST, OBC and Muslim backgrounds lagged behind in basic learning compared with those from general castes. This is partly attributable to the fact that their parents' education level was on average lower than that of upper caste groups. Indeed, it emerged that paternal education level affected children's basic learning, and expenditure on schooling.

Study findings indicate that there may be a chance of escaping poverty through education, particularly for relatively wealthy and upper caste slum households. Nevertheless, such a likelihood for socially disadvantaged households – those with Muslim, OBC or SC/ST backgrounds – seems to be limited in respect of the present generation. On average, the parental generation amongst socially disadvantaged households was found to attain a lower education level than that of higher castes. This had a fundamental adverse effect on children's learning process even if those from such households were not disadvantaged in terms of equitable access to education. What is worse, Muslim children are less likely to attend school.

A similar tendency was found in terms of migrant slum dwellers – whose parental education level was not necessarily lower, and entry into the labour market and remuneration from it were not disadvantaged to any greater or lesser extent than was the case with their non-migrant counterparts. However, since migrant slum dwellers suffer from inequality with regard to access to schooling, they might find it extremely problematic to escape from poverty in the present generation.

8.3. Policy Implications

The findings of the study draw several implications in terms of policy on poverty

reduction and universal access to education; this section is mainly confined to the latter.

Firstly, the rates of return to primary and middle school education were found to be higher than those to secondary schooling and above. Current compulsory education extends to middle school completion. A guarantee of at least compulsory years education for all children – including those of slum dwellers – is needless to say vital in so far as it is a fundamental right of the child as well being highly desirable in terms of upward economic mobility.

Secondly, the results show that female education is not a significant determinant of earnings and a mother's role in her children's schooling is limited. However, this should not be taken as an indication that girls' education is not worth promoting. It was found that, although largely insignificant, the female rate of return to education tended to be higher than that of males. Moreover, the social return to girl's education – although beyond the scope of the present study – may be substantial, as the existing literature suggests (Appleton et al., 1996); but females are still less likely to be educated and gainfully employed. Nevertheless, gender bias in terms of education and earnings can be mitigated through long-term policy intervention. Numerous policies to eliminate discrimination against girls and women have already been implemented in India, but further effort clearly needs to be put into ensuring that they reach those who subsist at the lower social and economic strata.

Thirdly, in a context in which urban poverty has recently risen and there has been a sizeable increase in rural–urban migration (Government of India, 2009b), the most important underlying implications for universal primary education seem to be that parental awareness of schooling must be raised even before children are enrolled; the

admission procedure needs to be simplified; and slum children and those exposed to deprivation in general should be helped to enrol in and consistently attend school. Simultaneously, pre-school-age children should be prepared for formal education by emphasising the importance of birth registration and pre-schooling. In fact, the first nationwide compulsory education law in India, the Right of Children to Free and Compulsory Education Act, 2009, clearly stipulates that no child shall be denied admission to a school for lack of proof of age. Accordingly, the prescriptions of the act should be followed by all schools in the admission of each child in their respective catchments.

Fourthly, it emerged from the study that a major reason why children never attended or withdrew from school early was lack of finance. It has been pointed out that personal tuition fees increase expenditure on education while incentives significantly reduce it. Incentives thus play a significant role in helping poor households make ends meet. Given that it was found that not all eligible children benefitted from such schemes, the implication is that the delivery of free uniforms, textbooks and other assistance should be improved.

Fifthly, it seems that personal tuition is essential if pupils are to achieve above average academic performance and thus continue their schooling; but such a service significantly increases expenditure on education. Therefore, free curricular and/or extra-curricular remedial classes might be considered, particularly for those who are underprivileged in terms of household economic condition, caste, religion, migration status, and/or first-generation educational attainment. The latter criteria are supported by the study finding that underprivileged children and first-generation learners are less likely to be able to write their name accurately.

Finally, analysis of the intergenerational education–poverty nexus suggests that schooling has the potential to break the vicious circle experienced by slum households. Paternal education was found to play an important role in the schooling of subsequent generations; however, such a tendency did not seem to be manifested as widely amongst groups that were disadvantaged in terms of caste and/or religion. A wide range of social and economic welfare interventions targeting the underprivileged, and addressing such areas as nutrition, housing, employment, and incentives for school enrolment, together with efficient programme implementation is thus required to improve the living standard of slum dwellers.

8.4. Areas for Future Research

The fieldwork for this study was conducted in notified Delhi slums. Therefore, the findings of the thesis might be context specific and not generalisable or even applicable to either deprived areas of other Indian cities or other countries. Indeed, this study is just a first step in understanding the relationship between education and poverty, as well as the problems of access encountered by the lower socio-economic echelons of urban society. As developing countries undergo rapid economic growth and urbanisation, further research on slum dwellers and their households is required.

There is still much scope for research on the education–poverty nexus. Firstly, the correlation between education and a more diverse concept of deprivation than the mere monetary aspect could be explored. The present study examined basic needs, capabilities and subjective wellbeing, but there are also other dimensions to poverty such as social exclusion. Further research on this wider concept of deprivation could deepen insight into the relationship between education and non-monetary poverty, and

the processes such a dynamic is subject to.

Secondly, changing trends in the labour market might have different effects on the employment and earnings of slum dwellers in the future. Work without job or social security – i.e. informal employment in the formal sector or informal sector employment – has become more widespread in the urban Indian labour market. This includes the outsourcing of the kind of lower ranking government job such as road sweeper, labourer, gardener and driver that slum dwellers have traditionally occupied. Indeed, it is much less common to find slum dwellers of the present generation engaged in such public sector occupations. This implies that slum children might find it more difficult to gain access to reasonably well-paid secure jobs even if they are more highly educated than their parents. Similarly, perceptions of women's work could also change in the future and more females might work outside the home. Such trends in the degrees and processes of shifting education–employment linkages should thus be investigated further.

Thirdly, the quality of Indian education should be examined more thoroughly. There is still a knowledge gap in the standard of schooling, and enrolment and attendance patterns among slum children. The present study found that not all pupils received effective education. Under the Right of Children to Free and Compulsory Education Act, 2009, all children in a catchment area are required to enrol in the school that serves it. Therefore, attendance rates are expected to increase and the quality of education might have a different and more far-reaching effect on both schooling and individuals' livelihoods when they join the labour market. The long-term outcomes of higher enrolment rates should therefore be studied further.

Fourthly, it emerged that some sample slum children – albeit very few – attended private school because such education was perceived by their parents to deliver a better quality of schooling than the public sector. However, it was seemingly problematic for households to continue to return children year after year due to financial constraints. Moreover, study results show that returns to private education do not compare favourably with the public sector given the high outlay required of the former. Accordingly, the further analysis of private education – including low-fee private schools– is required in order to understand the effect of the quality of (private) schooling on subsequent earnings and other aspects of slum dwellers' lives, as well as the strength of the linkage in terms of migrants denied access by the state at their destinations.

Finally, the thesis was unable to distinguish the different temporal aspects of deprivation, that is, chronic and transient poverty. There may be variation in the characteristics of chronically and transiently poor households, individuals and children. In order to research these facets of deprivation, the same households should be traced after some time. In fact, I did prolong the process of my doctorate and conduct a tracer survey in the same slum households in 2012. From the second round of the survey, the causal relations between education and poverty, and poverty and child education can be further analysed, and changes may be found in the degree and nature of the linkage. Although I am already slowly analyzing the second round, this is my immediate challenge for the near future.

8.5. Concluding Remarks

This thesis has examined the linkages between education and poverty and vice versa amongst slum dwellers. The analysis clearly demonstrates that higher educational

attainment leads to enhanced earnings, particularly amongst male slum dwellers. At the same time, the role of schooling extends beyond the return it brings with regard to earnings, to perceptions around attitude and self-esteem. Education has a positive correlation with monetary poverty at household level, while it does not necessarily alleviate non-monetary poverty, including basic needs, capabilities, and subjective wellbeing. At the individual level, poverty also affects the education of subsequent generations. It thus seems that the vicious circle of poverty can be broken in the future through education in respect of relatively better-off slum dwellers, but not when slum residence is combined with further disadvantage in terms of caste, and/or religion, or if the household has recently migrated to an urban area.

The findings of the study imply that many policy challenges are necessary in terms of elimination of discrimination against girls' schooling and women's subsequent rates of pay; improvement of education access for the poor, underprivileged groups, and migrants by increasing parental awareness for schooling, simplifying admission procedures, and helping slum children to enrol in school; provision of incentives for all eligible school-age slum children; and remedial classes to maximise educational attainment. As urbanisation in India and most other developing countries accelerates, increased population migration from rural to urban areas can be expected. A timely policy intervention is thus all the more critical.

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Appendix 1 Main Primary and Secondary Education-related Assistance provided by the Government of Delhi (as of August 2008)

Type	Scheme	Target group	Parental annual income ceiling	Amount of financial or in-kind support per person at various levels
Scholarship	Scholarship for Disabled Persons	Special needs students	None	Per month: INR 50 at primary; INR 70 at middle; INR 125 at secondary; INR 200 at higher secondary; INR 500 at tertiary
	Lal Bahadur Shastri Scholarship to Meritorious Students of Economically Weaker Sections of Society	Underprivileged pupils in grades 7–12 scoring more than 80 per cent in annual examination	INR 100 thousand per annum	Per annum: INR 400 at grades 7 and 8; INR 600 at grades 9 and 10; INR 1,550 at grades 11 and 12
	Scholarship for promoting incentives in primary education for girls from underprivileged castes	Female pupils from SCs, STs and OBCs in grades 1–5	None	Discretionary
	Welfare of educationally underdeveloped minority students	Educationally underdeveloped minorities (Neo-Buddhists and Muslims)	INR 100 thousand per annum	INR 20 per month or INR 200 per annum at primary; INR 30 per month or INR 300 per annum at middle; INR 40 per month or INR 400 per annum at secondary; INR 50 per month or INR 500 per annum at higher secondary

	Meritorious scholarship to SC/ST/OBC/minority pupils in grades 6–12	Pupils in grades 6–12 in government and private government-aided schools	None for SC/STs; INR 100 thousand per annum for OBCs and minorities	Per annum: grades 6–8: INR 500 for pupils scoring 55–60%; INR 600 for pupils scoring more than 60%; grades 9–12: INR 1,350 for pupils scoring 55–60%; INR 1,700 for pupils scoring more than 60%
	Reimbursement of tuition fees in public schools	All pupils in grades 1–5; pupils in grades 6–12 scoring 50% and above in annual examination, whose attendance was not less than 80% in the preceding year	INR 100 thousand per annum	Reimbursement of 100% of tuition fee for pupils whose family income is less than INR 60 thousand per annum; reimbursement of 75% of tuition fee for pupils whose family income is INR 60–100 thousand per annum
	Ladli Scholarship	All girls	INR 100 thousand per annum	INR 11,000 on birth of girl (INR 10,000 for non-institutional birth); INR 5,000 each year on admission to grades 1, 6, 9, graduation from grade 10, and admission to grade 12
Nutrition	Supplementary nutrition programme	Children of 0–6 years and their mothers; adolescent girls;	None	Provision of meals

		pregnant women		
	Midday meal (Government of India programme)	All pupils in primary and middle grades in government and private government-aided schools, and non-formal education centres	None	Provision of midday meal
	National programme for adolescent girls	Adolescent girls aged 11–19	None	Provision of 6 kg of wheat to undernourished adolescent girls
Textbooks, stationery, uniform, and clothing	Subsidised items for pupils	All pupils in grades1–12 in government and private government-aided schools; those for whom fees are waived in education guarantee scheme schools, and alternative and innovative education centres	None	Per annum: INR 500 per pupil
	Free textbooks	All pupils in grades1–12 in government and private government-aided schools; those for whom fees are waived in education	None	Free textbooks for all pupils

		guarantee scheme schools, and alternative and innovative education centres		
	Free materials	Pupils in grades 8–12 taking mathematics as an option	None	Geometry set (cost: INR 30)
	Free textbooks	Blind Students	None	Braille textbooks
	Welfare scheme for pupils in Municipal Corporation of Delhi (MCD) schools	Pupils aged 5 to 11 years	None	Free textbooks and uniform
		All MCD school pupils	None	One summer uniform and pair of shoes
		Grades 1–3	None	One pullover
	Welfare scheme for pupils in New Delhi Municipal Council (NDMC) schools	Pupils in grades 1–12 in NDMC-aided schools	None	Free textbooks for pupils in grades 1–12; free stationery for pupils in grades 1–5; free uniform for pupils in grades 1–12; free shoes and socks for pupils in grades 1–5
	Financial assistance for purchase of stationery to SC/ST/OBC/minority pupils	SC/ST/OBC/ minority pupils in government and private government-aided schools whose attendance was not less than 70% in the preceding year	INR 100 thousand per annum	INR 45 per month for 10 months at grades 6 –8; INR 75 per month for 10 months at grades 9–12
Hostels	Hostel for SC/ST/OBC/minority	Accommodation for 100 males	INR 100 thousand per annum	

	boys	studying in grade12 and above at government schools and colleges		
	Hostel for SC/ST/OBC/ minority girls	Accommodation for 70 females studying in grade 12 and above at government schools and colleges	INR 100 thousand per annum	
Non-formal education	*Kishori Shakti Yojana*	Girls aged 11–18	None	Provision of requisite literacy and numeracy skills through the non-formal education sector; training and equipping adolescent girls to improve home-based and vocational skills

Source: Planning Department, Government of Delhi (http://delhiplanning.nic.in/Reports/plan%20Schemes.pdf).

Appendix 2 Slum Community Questionnaire

Slum Community Questionnaire in 2007–08

Slum/cluster number: ☐☐ Name of slum:_

Total area of slum (feet):

Interviewees:

Date of interview: ☐☐ ☐☐ ☐☐ Time: : ~ : Interviewer:

Date of interview: ☐☐ ☐☐ ☐☐ Time: : ~ : Interviewer:

Date of interview: ☐☐ ☐☐ ☐☐ Time: : ~ : Interviewer:

Date of interview: ☐☐ ☐☐ ☐☐ Time: : ~ : Interviewer:

I. Socio-economic Background

1. Year of slum establishment:

2. Place of origin (list residents' states and districts of origin as well proportional breakdown):
3. Population of slum:
4. Approximate number of households:
5. Population by religion: Hindu: _____% Muslim:_____% Other (please specify):_____%
6. Caste (major castes and proportional breakdown):
7. Males' main occupations:
8. Females' main occupations and approximate percentage of women who are employed:
9. Percentage of households that have ration cards: the poorest of the poor (*Antyodaya)*, below the poverty line (BPL), and above the poverty line (APL) respectively:

10. Distance to the nearest fair-price ration shop (in km; name of shop slum dwellers normally use):

11. Provision of *microfinance scheme* in this slum:

II. Education

1. Schools within the slum

	Name	Type of school (code 1)	Address (or landmark)	Lowest grade	Highest grade	Language of tuition (code 2)	Pupils (code 3)	Shift (code 4)
1								
2								

2. Schools located outside the slum that children attend (up to grade12)

	Name	Type of school (code1)	Address (or landmark)	Distance from slum	Lowest grade	Highest grade	Language of tuition (code 2)	Pupils (code 3)	Shift (code 4)
1									
2									
3									
4									

Code 1: 1 = Municipal Government of Delhi (MCD); 2 = New Delhi Municipal Council (NDMC): 3 = Central Government:
4 = Delhi Government (state government); 5 = Delhi Cantonment Board; 6 = Private; 7 = Charity or religious school;
8 = NGO school; 9 = Corporate or industry-sponsored school; 10 = Military-sponsored school;
11 = other (please specify)

Code 2: Please specify all languages of tuition

Code 3: 1 = Boys only; 2 = Girls only; 3 = Co-educational

Code 4 (shift): 1 = Morning classes only; 2 = Afternoon classes only; 3 = Double shift (morning and afternoon classes); 4 = Other shift pattern (please specify).

3. Approximately what percentage of children of elementary school age (grade 1-8) in this slum attends private school? _____ %

4. How many ICDS centres (*anganwadi)* are there in this slum?

5. Approximately what percentage of children of elementary school age (grades 1–8) is currently out of school? _____

Health

1. Mobile Health Services

(1) Has a mobile health service visited this slum in the last 12 months?

(2) How often is it available?

(3) What professional services are provided (how many doctors, nurses, pharmacists or other medical practitioners)?

(4) What treatment do they provide?

2. Malaria Spraying

1. How often has vector spraying been implemented in the last 12 months?

3. Permanent hospitals/health centres/clinics/dispensaries: where do slum dwellers go most often for treatment?

	Name	Distance from slum	Type (Code 1)	Other remarks
1				
2				
3				
4				
5				

Code 1: 1= government; 2 = private; 3 = religious charity; 4 = NGO implemented; 5 = other (please specify)

(5) Other environmental infrastructure and services

1. Type of house (1) *kuchcha* % (2) Semi-*pucca* % (3) p*ucca* %
2. How many public standpipes are there in this slum? How many are there within walking distance outside the slum?
3. How many public hand pumps are there in this slum?
4. To what extent do households have a mains water connection at home? %
5. How many hours on average is water available in this slum?
6. How many toilets do people in this slum use and how far is the nearest (km)? What is the charge? Are they clean?
7. Is there a refuse disposal system?
8. How many streetlights are there in this slum?
9. Is there a legal electricity connection to this slum?
10. To what extent are internal roads/streets paved (percentage)?
11. How far is the nearest place of worship (km)?
    (1) Hindu temple (2) Mosque (3) Other nearby place of worship (please specify)
12. Is there a community centre in this slum where slum dwellers get together?

13. Do any NGOs operate in this slum? If yes, please list them.

	Name of NGO	Main activities	Target group (e.g. women, children under 5, school-age children)	Does this NGO have an office in this slum?	Are there any NGO field staff posted in this slum?	Are there any slum dwellers employed by this NGO?
1						
2						
3						
4						
5						
6						
7						

14. Have any government programmes targeting slum dwellers been implemented? If yes, please specify.

15. Have the following services improved in this slum during the last five years?

(1) Water supply
(2) Electricity supply
(3) Internal roads
(4) Street lighting inside the slum
(5) Refuse disposal
(6) Drainage system
(7) Toilets

1. Significantly improved	2. Improved	3. About the same	4. Deteriorated
5. Significantly deteriorated			

(6) Decision making

1. Is there a decision-making body in this slum: Yes: 1 No: 2
2. Formal leader(s)' name:
3. Informal leader(s)'s name:
4. Affiliation with political parties: Yes: 1 No: 2
5. If yes, which political parties:
6. Does any political party have any office in the slum?
7. Current major concerns in this community:
8. Problem-solving history:

(7) Interviewer's observations on overall slum community situation: (Use separate sheets)

Appendix 3 Slum Household Questionnaire

Slum Household Questionnaire in 2007–08

Slum and household number in 2007/08: ☐☐ - ☐☐

Address:_____ Household head and sex:_____

Date of interview: ☐☐ ☐☐ ☐☐ Time:____:____ ~ ____:____ Interviewer:_____

Date of interview: Time:____:____ ~ ____:____ Interviewer:_____

Schedule review: Reviewer: _____

1. Completed
2. Incomplete
3. Other

Editing: 1. Person:_____

2. Date of completion:_____

Data entry: 1. Person: _____ _____

2. Date of completion:_____

A: Household roster [list all people who normally live together and eat from a common kitchen] [use separate sheets if there are more than 8 members]

	1	2	3	4	5	6	7	8	9	10	11
ID	Name	Sex Male: 1 Female: 2	Relationship to head [see code]	Respondent 1:Respondent 0:Others	Current marital status [see code]	Age	[Only those who have ever been married] Age at marriage	Does this person have a birth certificate? Yes: 1 No: 2	Spouse's ID code [Indicate if there is more than one couple per household]	Father's ID code	Mother's ID code
1											
2											
3											
4											
5											
6											
7											
8											

Code for 4: Relationship to head

1. Head
2. Head's spouse
3. Son/daughter
4. Son/daughter-in-law
5. Mother/father
6. Mother/father-in-law
7. Grandmother/father
8. Brother/sister
9. Brother/sister-in-law
10. Niece/nephew
11. Child of niece/nephew
12. Grandson/daughter
13. House helper, servant or their relative
14. Paying guest, tenant or tenant's relative
15. Other relative
16. Other (specify)

Code for 6 Current marital status

1. Married
2. Never married
3. Widow/widower
4. Divorced/separated
5. Awaiting *gauna* ceremony
6. Living together as though married
7. Other, specify

	12	13			14	15	16			17			**Code for state** 1. Andhra Pradesh 2. Assam 3. Bihar 4. Chhattisgarh 5. Delhi 6. Gujarat 7. Haryana 8. Himachal Pradesh 9. Jammu & Kashmir 10. Jharkhand 11. Karnataka 12. Kerala 13. Madhya Pradesh 14. Maharashtra 15. Orissa 16. Punjab 17. Rajasthan 18. Tamil Nadu 19. Uttaranchal 20. Uttar Pradesh 21. West Bengal 22. Other, specify
I D	Was this person born in Delhi? Yes=1 → Go to Q17; No=2 → Go to Q13	Place of birth [see state code] [write name of district or city] [area code] 1. Rural 2. Urban (non-slum) 3. Urban (slum)			Which year did this person come to Delhi?	Did this person move to Delhi directly from place of birth? Yes=1 → Go to Q17 No=2	If no, last residence prior to moving into Delhi [see state code] [write name of district or city] [area code] 1. Rural 2. Urban (non-slum) 3. Urban (slum)			In the last 12 months, how many **DAYS** has this person been away from home due to: 1. Visiting own/parents' home village 2. Work 3. Education/training			
		State	District/city	Area			State	District/city	Area	1	2	3	
1													
2													
3													
4													
5													
6													
7													
8													

B. Basic household information [ask either household head or spouse]

a) Socio-economic status

1. Religion of head of household [indicate if any family member has a different religion]

Religion code: 1= Hindu 2=Muslim 3=Christian 4=Sikh 5=Buddhist 6=Jain 7=Other [specify]

2. Mother tongue or main languages spoken in household [up to two languages]

Language code							
1. Assamese	2. Bengali	3. Boda	4.Dogri	5. Gujarati	6. Hindi	7. Kannada	8. Kashmiri
9. Konkani	10. Marathi	11. Malayalam	12. Manipuri	13. Nepali	14. Oriya	15. Punjabi	16. Sanskrit
17 Santali	18. Sindhi	19. Tamil	20. Telugu	21. Urdu	22. English	23. Other [specify]	

3. Caste/tribe of head of household and that of spouse before marriage (if different)

Head: _____ Head's spouse (before marriage, if different from head)_____

4. State category under which caste is classified

Head: _____ Spouse (before marriage, if different from head)_____

1. Scheduled Caste 2. Scheduled Tribe 3. Other Backward Caste 4. None of the above

5. Does this household have the following? [list all]

1. Token 2. Ration card 3. Voter's ID card 4. PAN (income tax card) 5. Passport 6. Bank account 7. Medical insurance

8. Provident fund (or other pension scheme) 9. Driving license

b) Place of origin and migration

1. (1) Does household head have own cultivable land in the place of origin? 1 = Yes 2= No

(2) If yes, how large is the total land? _____

(3) Does household head have a house in the place of origin? 1 = Yes 2= No

(4) Which family members still live in the place of origin? [See code below]_____

1. Father	2 Mother	3. Brother	4. Sister	5. Spouse/fiancé	6. Grandfather	7. Grandmother
8. Children	9. Other [specify]					

2. **[Only for migrant household head]**

(1) Why did you migrate to Delhi? [List all reasons]

1. Flood	2. Drought	3. Other natural disaster [specify]	4. Indebtedness/bonded labour	5. Domestic violence
6. Ethnic/political violence	7. Unemployment	8. Loss of land/livestock	9. Marriage	10. Better education
11. Exploration	12. Epidemic	13. Lack of food	14. Better job	15. Invitation
16. Death in family	17. To find a job	18. Family migrated	19. No self-esteem	20 To join family
21. Caste hierarchy	22. Other [specify]			

(2) Which family members/friend already lived in Delhi before arriving? [See code below][Allow multiple] Head:_____Spouse:_____

1. Father	2 Mother	3. Brother	4. Sister	5. Spouse/fiancé	6. Grandfather	7. Grandmother
8. Children	9. Villager (*gaon wallah*)	10. Caste group (*Jatwallah*)	11. Other [specify]			

3. (1) Does this household plan to move out of its current dwelling within the next 12 months?

1. Yes, definitely 2. Yes, probably 3. Yes, possibly 0. No → Go to the next section

(2) Where do you plan to move to?

1. Non-slum area within Delhi 2. Slum area within Delhi 3. Return to place of origin 4. Other [specify]

(3) Why are you thinking of moving? _____ [Allow multiple]

1. Larger house 2. Smaller house 3. Cheaper house 4. Safer/better neighbourhood

5. Closer to work [specify whose] 6. Change in household, e.g. death or divorce [specify] 7. Other [specify]

C: Education: Educational attainment [list all household members in the same order as A Household Roster] [applies to those above the age of 5]

	1	2	3	4	5	6	7	8	9	10
ID	Can this person write their own name accurately in any language?	Can this person read a letter accurately in any language?	Can this person write a letter in any language?	Can this person speak English?	Can this person read English?	Can this person write English?	During **the last four weeks**, on average, how often did this person			How many times have you been to the cinema or theatre to see a movie/play/ concert during the last 12 months?
							Read a newspaper, magazine or book?	Watch TV?	Listen to the radio or music?	
	1. Yes 2. No			1. Fluently 2. Moderately 3. A little 4. Very little 5. Not at all			1. Daily 2. A few days a week 3. Less than a few days a week 4. Never			
1										
2										
3										
4										
5										
6										
7										
8										

C. Education: Education experience [list all household members in the same order as A Household Roster]

	1	2	3	4		5	6	
ID	What level of education has this person reached [see code]	If this person never attended school, why? [see reason code] [allow multiple]	Has this person ever received an education scholarship? Yes: 1 No: 2 → Go to Q6	What kind of scholarship/subsidy at what grade(s)/level(s)? [allow multiple]		Who provided scholarship? 1.Govt 2.NGO 3.Religious organisation 4.Other [specify]	For how long did this person attend pre-schooling?	
				Level [see code Q1]	Type of scholarship [see code Q4 Type]		Years	Months
1								
2								
3								
4								
5								
6								
7								
8								

Q1 code

1–12. School grades
13. 1st year tertiary
14. 2nd year tertiary
15. 3rd year tertiary
16. 1st year post- graduate
17 2nd year post-graduate
18. Non-formal centre
19. Technical school
20. Polytechnic [specify level]
21. Open school [specify level]
22. Other, e.g. LKG, UKG [specify]
23. Never attended/

Q4 Type of assistance code

1.Fees 4.Textbooks/materials
2.Meals 5. Uniform/clothing
3.Hostel 6.Others, specify

Reason Code

1.Distance to school	5. Language problem	9. Migration/home visit	13. Employment	17. Own illness	21. Other [specify]
2.School closure	6. Bullying/discrimination	10. Own poor performance	14. Engage/married	18. Participation in household economic activities	
3.Uninteresting curriculum	7. Own bad behaviour	11.Own unwillingness	15. Domestic chores	19. Parents think it unnecessary	
4.Unsuitable school environment	8. Lack of good company	12 Financial constraints	16. Family illness	20. Priority of boys' education	

C. Education: Education Experience (continued): Primary school

	7	8	9	10		11	12		13	14
ID	How old was this person when they enrolled in primary school?	What type of primary school did (is) this person attend (attending)? [see school type code] [allow multiple]	Language of tuition [see language code p.3] [allow multiple]	Location of school(s) [see state code p.2] [see location code] [allow multiple]		Has this person ever repeated a grade in primary school? Yes=1 No=2	If yes, which grade and how many times has this person repeated it? [allow multiple]		If this person withdrew from or did not complete primary school, why? [see reason code p.7] [allow multiple]	If this person successfully completed primary school but did not proceed to middle school, why? [see reason code p.7] [allow multiple]
				State	Location		Grade	No. of times		
1										
2										
3										
4										
5										
6										
7										
8										

School type code

1. Local government
2. State government
3. Central government
4. Navodaya Vidyalaya
5. Kendriya Vidaylaya
6. Private 8. NGO
7. Religious/religious charity
8. Corporate (industry)
9. Other, specify

Location Q10 (and elsewhere) code

1. State capital (slum)
2. District headquarters (urban slum)
3. Block headquarters (urban slum)
4. Other urban area (slum)
5. Village (rural area)
6. State capital (non-slum)
7. District headquarters (non-slum)
8. Block headquarters (non-slum)
9. Other urban area (non-slum)

C. Education: Education experience (continued): Upper primary/middle school

	1	2	3		4	5		6	7
ID	What type of middle school did (is) this person attend (attending)? [see school type code p.8] [allow multiple]	Language of tuition [see language code p.3] [allow multiple]	Location of school(s) [see state code p.2] [see location code p.8] [allow multiple]		Has this person ever repeated a grade in middle school? Yes=1 No=2	If yes, which grade and how many times has this person repeated it?		If this person withdrew from or did not compete middle school, why? [see reason code p.7] [allow multiple]	If this person successfully completed middle school but did not proceed to secondary school, why? [see reason code p. 7] [allow multiple]
			State	Location		Grade	No. of times		
1									
2									
3									
4									
5									
6									
7									
8									

C. Education: Education experience (continued): Secondary school

	1	2	3		4	5		6	7	8
ID	What type of secondary school did (is) this person attend (attending)? [see school type code p.8] [allow multiple]	Language of tuition [see language code p.3] [allow multiple]	Location of school(s) [see state code p. 2] [see location code p. 8]		Has this person ever repeated a grade in secondary school Yes=1 No=2	If yes, which grade and how many times has this person repeated it? [allow multiple]		If this person withdrew from or did not complete secondary school, why? [see reason code p.7] [allow multiple]	If this person successfully completed secondary school, which school leaving certificate did this person obtain? 1. State government 2. Central government 3. National open school 4. Other, specify	If this person successfully completed secondary school, but did not attend senior secondary school, why? [see reason code p. 7] [up to 2 reasons]
			State	Location		Grade	No. of times			
1										
2										
3										
4										
5										
6										
7										
8										

C. Education: Education experience (continued): Higher secondary school

	1	2	3		4	5	6		7	8
ID	What type of higher secondary school did (is) this person attend (attending)? [see school type code p.8] [allow multiple]	Language of tuition [see language code p.3] [allow multiple]	Location of school(s) [see state code p.2] [see location code p.2] [allow multiple]		Which course was (is) this person in? Science=1 Commerce=2 Arts/humanities=3 Other=4 [specify] [allow multiple]	Has this person ever repeated a grade in senior secondary school? Yes=1 No=2	If yes, which grade and how many times has this person repeated it? [allow multiple]		If this person withdrew from or did not complete higher secondary school, why? [see reason code p.7] [allow multiple]	If this person successfully completed higher secondary school, but did not proceed to an institute of higher education, why? [see reason code p.7] [allow multiple]
			State	Location			Grade	No. of times		
1										
2										
3										
4										
5										
6										
7										
8										

C. Education: Education experience (continued): Tertiary and above

	1	2	3	4	5	6	7	8	9	10
ID	What was (is) this person's major field of undergraduate study? [e.g. Psychology, Electrical Engineering] [allow multiple]	How many years did (has) this person attend (attended) an institute of higher education?	If this person withdrew from or did not complete a tertiary education course, why? [see reason code p.7] [allow multiple]	What first degree(s) was (were) this person awarded or currently working towards? [e.g. B.A., B.Tech, etc.] [allow multiple]	Which institute of higher education did (is) this person attend (attending)? [allow multiple]	How many years did (has) this person study (studied) for a post-graduate degree?	If this person withdrew from or did not complete a post-graduate course, why? [see reason code p.7 [allow multiple]	What was (is) this person's major filed of post-graduate study? [allow multiple]	What post-graduate degree(s) was (were) this person awarded or currently working towards? [e.g.MA, MSc, etc. from DU [allow multiple]	Has this person ever benefited from the 'caste quota' system in terms of tertiary education or above? Yes=1 No=2
1										
2										
3										
4										
5										
6										
7										
8										

C. Education: Education experience (continued): Non-formal education (adults and children)

	1	2	3	4	5		6	7	8
ID	Has this person ever enrolled on a non-formal education course? 0 = No → go to next section 1 = Yes, non-formal education centre 2 = Yes, adult education centre 3 = Yes, total literacy campaign 4 = Yes, other [specify] [allow multiple]	What capability (capabilities) did (is) this person learn (learning)? [e.g. literacy, numeracy, general education, etc.] [open-ended] [allow multiple]	For how many years/months/ days in total did (has) this person attend (attended) one or more courses?	In which years? [allow multiple]	Where did (is) this person attend (attending) a non-formal education course(s)? [see state code p.2] [see location code p.8] [allow multiple]		Who was (were) non-formal education course(s) provided by? Government=1 NGO=2 Religious organisation=3 Other=4 [specify] [allow multiple]	Has this person paid or been paid for attending? Free=1 → Go to next section Paid=2 → Go to Q8 Received payment=3 → Go to Q8	How much did (is) this person pay (paying) or receive (receiving) per month on average?
					State	Location			
1									
2									
3									
4									
5									
6									
7									
8									

C. Education: Education experience (continued): Skills development

	1	2	3	4	
ID	Has this person ever attended a technical school or enrolled on a formal professional or technical course at a vocational training institute or centre? Yes=1 No=2	What skill(s) did (is) this person learn (learning)? [open-ended] [allow multiple]	For how many years/months/ days did (has) this person attend (attended) a course in each skill?	In which institute(s) did (has) this person receive formal skills development? [name of technical school, polytechnic, company, etc.] [see state code p.2] [allow multiple]	
				State	Name of institute
1					
2					
3					
4					
5					
6					
7					
8					

C: Education experience (continued): Current attendance [list all household members in the same order as A: Household roster]

	1	2	3	4	5	6	7
ID	Is this person **CURRENTLY** studying with any type of education institution? Yes=1 No=2 →go to next page	What grade, year or stage is this person currently in?	What type of education institution(s) is (are) this person studying with? [see Q3 education institution type code] [if in doubt, list the name of the school] [allow multiple]	What is (are) the language(s) of tuition? [see language code p.3] [allow multiple]	Distance from home to the education institution(s) that this person attends [one way, in km]	How long does it take this person to travel to school/ college? [one way, in minutes]	How does this person travel to school/college? [see Q7 transport code] [allow multiple]
1					km	min	
2					km	min	
3					km	min	
4					km	min	
5					km	min	
6					km	min	
7					km	min	
8					km	min	

Q3 Education institution type code

1. MCD	5. Delhi Cantonment Board	9. Corporate/industry-supported
2. NDMC	6. Private	10. Military-sponsored
3. Delhi Government	7. Charity/religious	11. Other [specify]
4. Central Government	8. NGO	

Q7 Transport code

1. On foot	5. Auto-rickshaw
2. Cycle –rickshaw	6. Train/Metro
3. Bicycle	7. Other [specify]
4. Bus	

C. Education: Outside school study and education expenditure for the last 12 months

	1	2	3	4	5	6	7	8	9	10	11	12
ID	Did this person attend one or more education institutions, or study on any technical, professional or skills development courses in the **last 12 months**? Yes=1 No=2 → Go to next page	How many days in total **in the last term** did this person **not** attend any education institution in which they were enrolled? [do not include school holidays]	How many hours a day on average **in the last term** did this person spend studying at home?	How many hours a day on average **in the last term** did this person spend with a personal tutor?	How much Indian rupees has this household spent on this person's education/skills development **in the last 12 months** for:							
					Tuition fees	Uniform and other clothing	Educational materials [stationery, textbooks, exercise books, etc.]	Meals, transportation and lodging	Extra-curricular coaching/personal tuition	PTA fees	Other [e.g. school excursions and functions]	Total
1												
2												
3												
4												
5												
6												
7												
8												

C. Education: Education expenditure (continued)

	13	14	15	16	17
ID	Who was this person's principal education sponsor during the last 12 months? [see Q13 education expenses payment code]	Did this person receive any official education assistance in the last 12 months? Yes=1 No=2 → Go to next section	What kind of official education assistance did this person receive in the last 12 months? [see Q15 type of official assistance code] [allow multiple]	Who provided official education assistance to this person? [see Q16 official assistance provider code] [allow multiple and specify provider of each item]	What is the monetary value of the official education assistance received by this person in the last 12 months?
1					Rs.
2					Rs.
3					Rs.
4					Rs.
5					Rs.
6					Rs.
7					Rs.
8					Rs.
9					Rs.
10					Rs.

Q13 code

1. Father
2. Mother
3. Brother
4. Sister
5. Self
6. Uncle
7. Aunt
8. Grandfather
9. Grandmother
10. Other, specify

Q15 Type of official assistance code

1. Fees
2. Textbooks/stationery
3. Uniform/clothing
4. Accommodation
5. Transport
6. Other, specify

Q16 Official assistance provider code

1. Government
2. NGO
3. Religious organisation
4. Corporate/industry
5. Other, specify

D: Perceptions of education, employment and health

a. Beyond education and training [ask either household head or spouse]

ID of those **BELOW 14 YEARS**	1. What level/kind of education do you consider best for this child's **employment** prospects?	2. What level/kind of education do you consider best for this child's **marriage** prospects?	3. What job (or occupation) do you expect this child to do in the future? [open-ended]	4. Has this child completed a vaccination course? 1. fully 2. partially 3. not at all	5. Has this child taken polio drops? 1. once 2. twice 3. Never	6. For how many years did (has) this child's mother breastfeed (breastfed) the child?

b. Educational attainment

1. [To be asked only of those who have attended school.] What do you think you gained from your education experience? [open-ended]

2. [To be asked only of those who are illiterate.] What problems do you encounter in daily life through being illiterate? [open-ended]

c. Subjective assessment of living standard

1. **In this slum**, do you think this household is relatively

   1. Very rich 2. Rich 3. Average 4. Poor 5. Very poor

2. Do you think your current standard of living is **better than that of your parents**? [see Q2/Q3 code] _____

3. Do you think your standard of living has improved **compared with that of 5 years ago**? [see Q2/Q3 code] _____

Q2 and Q3 code				
1. Strongly agree	2. Agree	3. Neither agree nor disagree	4. Disagree	5. Strongly disagree

4. Has this household encountered a major crisis in the last 12 months? _____ [Yes=1 No=2]

5. Taking everything into account, how satisfied is this household with its present situation? [see Q5 code] _____

Q4 code				
1. Very satisfied	2. Satisfied	3. Neither satisfied nor dissatisfied	4. Dissatisfied	5. Very dissatisfied

6. What factors did you take into account in answering Q5? What aspects of this household's situation have improved or deteriorated? [open-ended]

E: Health and nutrition [list all household members in the same order as A. Household roster]

	1	2	3	4	5	6	7	8
ID	Height (inches)	Weight (kg)	Is this person currently fatter or thinner than usual? Neither=0 Thinner=1 Fatter=2	Over the last 12 months, has this person had an illness or injury that has lasted more than one week? Yes=1 No=2	For how many weeks was this person debilitated owing to such illness/injury?	In the last three months, has this person experienced any health-related events that have made it difficult for the person to run for one minute? Yes=1 No=2	In comparison to 12 months ago, would this person say that the person's health is 1. Much better now 2. Somewhat better now 3. About the same 4. Somewhat worse now 5. Much worse now	How many meals does this person normally have per day?
1								
2								
3								
4								
5								
6								
7								
8								

[Instructions:

1) Weight: Avoid measuring after the subject has just eaten. Try to measure weight at 10:00 or 17:00. Place the scales on a completely flat floor. Measure each person twice. If the two figures differ, try a third time. Remove shoes, and as many outer clothes and accessories as possible.

2) Height: Remove shoes. The chin must be held up. The subject must stand straight in line with the wall.

E Health and nutrition

	9	10	11	12	13	14
ID	How many times has this person been treated as an outpatient at any health facility **during the last 12 months**?	Name of illness and/or injury necessitating outpatient treatment for this person [list all]	Where/by whom was this person treated for illness or injury? [see Q11 treatment code] [allow multiple]	For how many days was this person hospitalised **during the last 12 months**?	Name of illness and/or injury necessitating hospitalisation [list all]	How has this person met all health-related costs during the last 12 months? [see code] [allow multiple]
1						
2						
3						
4						
5						
6						
7						
8						

Q11 treatment code

1. Family/home treatment	7. Traditional healer	13. Government mobile clinic
2. Government hospital	8. Faith healer	14. Private mobile clinic
3. Private hospital/clinic	9. Private non-registered doctor	15.Government paramedic
4. Charitable/NGO hospital	10.Government dispensary	16.Private paramedic
5. Primary health centre	11. Government health worker	17. Other, specify
6. Private registered doctor/clinic	12. NGO health worker	

Q14 payment code

1. Loan	6. Self-financed
2. Non-repayable financial help	7. Government medical insurance
3. Withdrawal from savings	8. Private medical insurance
4. Sale of assets	9. Medical insurance covered by employer
5. Pawning of assets	10.Reduced household consumption
	11.Other, specify

E Health and nutrition (continued)

ID	15 Where did this person's mother give birth to the person? [see Q15 birthplace code]	16 Who assisted in this person's birth? [see Q16 assistance code]
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Q15 birthplace code

1. Own home
2. Parents' home
3. Other home
4. Government hospital
5. Government dispensary
6. Government health sub centre
7. NGO hospital/clinic
8. Private hospital/clinic
9. Other, specify

Q16 Assistance code

1. Doctor
2. Traditional midwife
3. Matron
4. Family/relative
5. Hospital midwife
6. Other [specify]

F. Family background of household head and spouse (information on their parents)

			1	2	3	4	5		6		7
			Are (were) parents alive? Yes=1 No=2	Current age of parents, or age at death if deceased	Were parents married before the age of 14? Yes=1 No=2	What is (was) the age difference among parents?	Parents' siblings (number)		Highest level of education of parents' siblings		Main area of residence of parents 1. = Rural area 2.= Urban slum 3. = Urban non-slum)
							Brothers	Sisters	Brothers	Sisters	
Household Head	Father	1									
	Mother	2									
Head's Spouse	Father	3									
	Mother	4									

			8	9	10	11
			Are (were) parent literate? Yes=1 No=2	What is (was) parent's education level	What is (was) parents maximum landholding?	What is (was) parent's main occupation?
Household Head	Father	1				
	Mother	2				
Head's Spouse	Father	3				
	Mother	4				

F. Family background of household head and spouse (information on their own)

		12		13	14		15	
		What is head's and spouse's total number of siblings?		What is the age gap between this head's and spouse's eldest and youngest sibling?	The highest level of education household head and spouse's siblings?		How many nephews and nieces does (did) household head and spouse have?	
		Brothers	Sisters		Brother	Sister	Nephews	Nieces
Household Head	1							
Head's Spouse	2							

G. Economic activities of household members [list all household members in the same order as A. Household roster]

	1	2	3	4	5	6	7
ID	**During the last 12 months,** has this person been employed? Yes=1 → Go to Q2 No=2 → Go to Q3	For how many months was this person employed during the last 12 months? If 12, → Go to Q4 If 1–11, → Go to Q3	What is the main reason that this person was not employed for the whole year? [see Q3 code] [allow multiple]	State all the specific work activities in which this person was engaged during the last 12 months [open ended] [specify beginning and end dates for each activity] [use a separate sheet if necessary]	Nature of employment [see nature of employment code] [list each type of work done during the last 12 months]	Place of work [list each for the last12 months] 1. Own house 9. Farm 2. Employer's house 10. Other, specify 3. Own unit/enterprise/shop outside house 4. Employer's unit/shop/enterprise 5. Street, fixed location 6.Street, various locations 7.Buiilding site 8. Door to door	How far did this person have to travel to work? [list distance in km to each workplace]
1							
2							
3							
4							
5							
6							
7							
8							

Q3 Work unavailability code
1.Own illness
2.Maternity leave
3. Illness in the household
4. Strike-suspension
5. Unable to find work
6. Visiting home village or relatives
7. Unable to find a work
8. Other [specify]

Q5 Nature of employment
1. Regular waged/salaried employee
2. Casual/daily wage labour
3. Self-employed (own-account)
4. Self-employed (employer)
5. Helper in household enterprise
6.Home worker

G. Economic activities of household members (continued)

	8	9	10	11	**Q9 Reason code**
ID	How did this person get the job(s) in which the person engaged in the last12 months, and who assisted the person? [see Q8 job search code] [allow multiple] [list for each job]	Why did this person take the jobs in which the person engaged in the last12 months? [see Q9 reason code] [allow multiple] [clarify reason for each job]	Did this person obtain skills, training or experience before engagement or as part of each job? Yes=1 No=2	Where did this person obtain skills, training, and/or experience? [open-ended]	1. It was what I wanted to do 2. Because it was available. 3. It is traditional family business 4. For better employment conditions 5. For better income 6. Because I obtained kills 7. Somebody helped me to get it. 8. Other, specify
1					
2					
3					
4					
5					
6					
7					
8					

Q8 Job search code				
1. Advertisement	4.Own enterprise	8 Mother's relative	12. Friend	16. Fellow villager
2. Labour office	5. Parents	9. Spouse	13. Neighbour	17. Fellow caste member
3. Contractor/middleman	6. Brother/sister	10. Spouse's relative	14. Present employer	18. Slum leaders
	7. Father's relative	11. Other relative	15. Colleague	19. Other [specify]

G. Economic activities of household members (continued)

	12	13	14
ID	Does this person currently have membership of any union, employment association, etc.? [allow multiple] 0. No membership 1.Trade union 2.Producers' co-operative 3.Workers' welfare association 4.Informal workers' association 5. Other [specify]	Does this person have a work-related ID card? Yes=1 No=2	Registration status of this person's enterprise, unit, shop or employer during last 12 months Non-registered=0 Registered=1 Do not know=888
1			
2			
3			
4			
5			
6			
7			
8			

G. Economic activities of household members (continued): Casual/daily wage labourers only

1	1	2	3	4	5	6	7		
ID	Type of contract with this person's employer for each job held in the last 12 months [see Q1 contract type code] [allow multiple]	If there was a contract **time limit** what was it in each case?	Was this person employed through a middleman or contractor? Yes=1 No=2	What daily in-kind benefits were there? 1. One meal per day 2. Two meals per day 3. Uniform/other clothing 4. Housing 5. Transport allowance 6. Other [specify]	Approximate number of employees at each workplace	Was (is) this person's workplace 1.Public sector 2.Semi-public 3.Private 4.Other [specify]	Number of working days in the last 12 months		
							Worked	Unemployed	Not seeking work
1									
2									
3									
4									
5									
6									
7									
8									

Q1 Contact type code

1. No contract 2. Verbal with time limit 3. Verbal without time limit 4. Written with time limit 5. Written without time limit

G. Economic activities of household members (continued): Regular waged/salaried employees only

1	1	2		3	4	5	6	7	8
ID	Type of contract with this person's employer for each job in the last 12 months 1. Regular waged/salaried 2. Formal contract 3. Informal Contract [allow multiple]	If contractual, what kind of contract? A: 1. Verbal 2.Written B: Period 1.Not fixed 2. X months [specify]		Was this person employed through a middleman/ contractor? Yes=1 No=2 [allow multiple]	Approximate number of employees at each workplace	Did this person have an interview with the employer, contractor or middleman before a job offer? [list for each job] Yes:=1 No:=2	Was (is) this person's workplace 1.Public sector 2.Semi-public 3.Private 4.Other [specify]	In case of dismissal, how much notice would this person be given for each job?	Did (does) this person benefit from any of the following? [see Q8 code]
		A	B						
1									
2									
3									
4									
5									
6									
7									
8									

Q8 code				
1. Paid holiday	3. Paid maternity leave	6. Bonus in cash	9. Redundancy entitlement	12. One meal a day
2. Paid sick leave	4. Uniform/clothes	7. Overtime payment	10. Housing	13. Two meals a day
	5. Bonus in kind	8. Pension scheme	11. Travel allowance	14. Other, specify

G. Economic activities of household members (continued): Self-employed (own account), employers, helpers in a family enterprise and home workers only

	1				2			3	4	5	6	7
ID	How many household and non-household members work for this persons' enterprise?				Number of working days in the last 12 months			Who supplied this person's inputs, raw materials, etc.? [allow multiple] 1. Self 2.Wholesale 3. Retail/shop 4. Other [specify]	Where are inputs/raw materials sourced from 1. Inside *slum* 2. Neighbouring *slums* 3. In Delhi 4. Outside Delhi 5. Outside India [allow multiple]	Does this person subcontract any work? Yes=1 No=2	Who purchases the products/services this person provides? 1.General public 2.Wholesaler 3.Retailer/shop 4.Other [specify]	Where are they located? [see Q4 code, p. 30]
	Household member (paid)	Household member (unpaid)	Non-household member	Non-household Member (unpaid)	Worked	Unemployed	Not seeking and unavailable for work					
1												
2												
3												
4												
5												
6												
7												
8												

G. Economic activities of household members (continued): All

	1			2			3	4	5			
ID	Working **DAYS** per month in the last 12 months			Working **HOURS** per day in the last 12 months			Mode of payment in the last 12 months [see Q3 mode of payment code] [specify for each job in the last 12 months]	In comparison to the previous year, was this person's take-home pay more or less for the last 12 months? [see Q4 income difference code]	Income [inclusive of taxes, debts, tips, gratuities, etc.] [for self-employed, calculate net income]			
	Slackest month	Busiest month	Last 30 days	Slackest month	Busiest month	Last 30 days			Lowest income month	Highest income month	Last 30 days	Bonuses, if any
1												
2												
3												
4												
5												
6												
7												
8												

Q3 Mode of payment code

1. Monthly 3. Daily 5. Piece rate 7. Share of production
2. Weekly 4.Hourly 6. Per job 8. Other [specify]

Q4 Income difference code

1.Much more than last year 3. Almost the same 5. Much less than last year
2.More than last year 4. Less than last year

G. Economic activities of household members (continued)

	1	2	3	4												5
ID	Is this person's current job the person's first job? Yes=1 No=2	How old was this person when the person started work? [applicable to all those who have ever had a job]	How many jobs has this person had in total? [applicable to all those who have ever had a job]	Detailed job history [applicable to all those who have ever had a job] [see nature of employment code, p. 26 Q5] [open-ended] [use a separate sheet, if necessary]												Has this person ever benefited from the 'caste quota' system in a public sector job? Yes:=1 No:=2 Not applicable= 777
				First job				Second job				Third job				
				Duration	Activity	Nature of job	Monthly income	Duration	Activity	Nature of job	Monthly income	Duration	Activity	Nature of job	Monthly income	
1																
2																
3																
4																
5																
6																
7																
8																

H. Other income and expenditure

Savings

1. Does this household set aside savings from its income?____[Yes=1 → Go to Q2; No=2 → Go to Q3]

2. If yes, approximately how much does it save per month? Rs. _____

3. Is anyone in this household a microfinance member? [Yes=1 → Go to Q4; No=2 → Go to next section (Debt)]

4. If the answer to Q3 is yes, what is the system? 1. Auction 2. Rotating 3. Rotary 4. Needs-based 5. Other [specify]

5. If the answer to Q3 is yes, how much has this household paid into the microfinance during the last month? Rs. _____

Debt

1. Does this household have any significant debts? _____ [Yes=1; N=2 → Go to e next section (Remittance)]

[significant debt is taken as more than one month's household income]

2. If yes, approximately how much does this household currently owe? Rs. _____

3. How much interest does this household have to pay per month on its main debt? _____

4. What are the main causes of this household's debt? [allow multiple] _____

5. Where did this household obtain a loan or credit? [allow multiple]

1. Bank/financial institution	2. Relative	3. Friend/neighbour	4. Money lender
5. *Shroff*	6. Shop keeper/wholesaler	7. Employer/contractor	8. NGO
9. Religious/caste organisation	10. Pawn of jewellery/land/livestock	11. Sale of jewellery/land/livestock	12. Government loan programme
13. Microfinance	14. Other [specify]		

6. How long does this household think it will take to repay its debts?

1. Within the next 6 months	2. Within the next 1 year	3. Within the next 18 months
4. Within the next 2 years	5. In excess of 2 years	6. Do not know

Remittance

1. In the last 12 months, has this household sent any money to a relative living outside the household?_____[Yes=1 → Go to Q2; No= 2 →Go to Q5]

2. If yes, to whom did this household send money? [allow multiple] _____

1. Head's parent	2. Spouse's parent	3. Child	4. Head's brother/sister	5. Spouse's brother/sister
6. Head's relative	7. Spouse's relative	8. Other [specify]		

3. Why did this household send money? [see reason for remittance code, p. 36] [allow multiple] [specify reason for each recipient] _____

4. How much has this household sent in total in the last 12 months? Rs._____

5. In the last 12 months, has this household received any money from a relative living outside household?_____

[Yes=1; No=2 → Go to next section (Miscellaneous)]

6. Who sent this household money? [allow multiple]

1. Head's parent	2. Spouse's parent	3. Child	4. Head's brother/sister	5. Spouse's brother/sister
6. Head's relative	7. Spouse's relative	8. Other [specify]		

7. Why did this household receive money? [see reason for remittance code p.36] [allow multiple] [specify reason for each sender]

8. How much has this household received in total in the last 12 months? Rs. _____

Miscellaneous

1. In the last 12 months, how much income has this household received in employment, old age, or widow's pension? Rs. _____
2. In the last 12 months, how much has this household earned from land or rent? Rs. _____
3. In the last 12 months, how much has this household earned or received from sources other than employment, remittance, land, rent or pension? Rs. _____

Reason for sending/receiving remittance code

1. Daily expenditures (e.g. food, clothing)	2. Family member's marriage	3. Children's education
4. Starting or expanding business	5. Natural disaster (e.g. flood, drought, fire)	6. Purchase of consumer durable(s)
7. Paying off debt	8. Future uncertainties	9. Purchase of capital asset (s) (e.g. land, house)
10. Working expenses until payment	11. Religious activities	12. Medical expenses
13. Other [specify]		

I. Basic household living conditions

a) Land and housing

1. Status of land this household currently occupies: 1=Legal 2=Illegal 3=Other [specify]
2. Total building are is [in square feet]: _____
3. Total number of separate rooms: _____
4. Type of kitchen [separate kitchen (inside house)=1 kitchen/living room combined=2 open kitchen (outside)=3]
5. How many windows does this house have? _____['0', if there are no windows]
6. Does this house have *a* drainage system? [Yes=1 No=2]
7. Type of house [see house type code] [list all]

   Current house 1) Roof:_____2) Walls:_____

   Previous house 1) Roof:_____2) Walls:_____

   House type code:

   1.iron 2. asbestos 3. brick 4. stone 5. concrete 6. tiles 7. slate 8. metal 9. grass 10. thatch 11. bamboo 12. plastic 13. mud 14. polythene 15. unfired brick 16 wood
8. Approximately when was this house built? [year] _____
9. How long has this household lived in this dwelling? _____years _____months
10. Is the current house: 1. Owned → Go to Q13 2. Rented → Go to Q11 3. Illegally Occupied → Go to Q14 Inherited → Go to Q14 5. Other [specify]
11. If it is rented, from whom? 1. Owner 2. Slum leaders 3. Government agency 4. Other [specify]
12. How much was the rent? Last month: _____For the last 12 months in total:_____
13. How much was the deposit on this house? Deposit: Rs. _____in the year_____
14. Has there been any renovation in the last 12 months? Yes=1 No=2 → Go to Q16
15. If yes, how much did it cost? Rs._____

16. Does this household foresee demolition of or eviction from its current dwelling in the future?__ Yes=1 No=2 Do not know=888

17. Does this household have any political support in avoiding demolition or eviction? Yes=1 No=2

18. Why did this household leave its previous place of residence? _____

Code:	1. Demolition/eviction	2.Resettlement	3. Natural disaster [specify]	4. Fire
	5. Needed a bigger dwelling	6. Needed a place close to work	7. Wanted a better environment	8. Cheaper rent
	9. Asked to leave by house owner	10. Other [specify]		

b) Utilities

1**.** What type of electricity connection does this house have?

1. None 2. Legal 3. Illegal 4. Connection via neighbour's supply

2. How many hours a day on average is electricity currently available? _____ hours

3. How much was the last electricity bill? Rs. _____ for _____ month(s)

4. What is this household's main source of drinking water? [see water code]

1. Piped into house/yard/plot	2. Open well in house/yard/plot	3. Public open well	4. Covered well in house/yard/plot
5. Public covered well	6. Piped public tap/standpipe	7. Public hand pump	8. Rainwater 9.Vendor (private)
10. Pond/spring/river/lake/stream	11. Supply tanker	12. Purchased bottled water	13. Free bottled water from neighbour
14. Other [specify]			

5. How many hours a day on average is water currently available? _____ hours

6. How often during the last dry season did this household **not** have enough water? _____ [1. Frequently 2. Sometimes 3. Never]

7. How does this household treat its drinking water? [see treatment code] [list all applicable]

1. Boil	2. Filter	3. Add chemicals	4. Strain through cloth5. Use electric purifier
6. Do not treat	7. Other [specify]		

8. How much did this household spend on drinking water in the last 30 days? Rs. _____

9. Does this household have a toilet at home? 1. Yes 2. No → Go to Q14

10. What type of toilet does this household have? [see toilet code] _____

1. Private flash toilet	2. Shared flush toilet	3. Private pit latrine	4. Shared pit latrine	5. Other [specify]

11. When was it constructed? [year] _____

12. How much did it cost? Rs. _____

13 Who helped construct it? [allow multiple]_____ 1. Government 2. NGO 3. Slum leader 4. Self 5. Other [specify]

14. How much did this household spend on public toilet charges in the last 30 days? Rs._____

15. Do you use traditional stove (*chulha*) for cooking? Yes=1 No=2

16. What fuel does this household mainly use for cooking? [allow multiple] _____

1. Charcoal 2. Coal/coke/lignite 3. Kerosene 4. LPG (cylinder gas) 5. Cow dung cakes
6. Electricity 7. Wood (firewood, chips) 8. Liquid petrol 9. Bio gas 10. Other, specify

17. How much has this household spent on the following in the last 30 days? [0 if nothing was spent on any item]

1. Charcoal: Rs._____ 2. Coal/coke/lignite: Rs._____ 3. Kerosene Rs._____ 4. LPG (cylinder gas): Rs._____
5. Cow dung cakes: Rs._____ 6. Electricity Rs._____ 7. Wood (firewood, chips) Rs._____ 8. Liquid petrol._____
9. Bio gas Rs._____ 10. Candles Rs._____ 11. Matches Rs._____ 12. Other [specify] Rs._____
13. Total fuel [data entry person to calculate]: Rs. _____

18. Does this household have a telephone (fixed line) at home? Yes=1 → Go to Q20 No=2 → Go to Q19

19. If No, where is the nearest telephone this household normally uses? _____ m away from home

20. How much was the last telephone bill? _____for _____ month(s)

21. Does any member of this household have mobile phone? Yes=1 No=2 → Go to next section

22. If yes, how much was the last bill or how much did this/these household member(s) pay for the last top-up?

Rs. _____When_____ [for pre-paid] Number of month(s) _____ [for contract]

J. Expenditure: food items

1. Has this household used a ration shop in a) The last 30 days:_____b) The last 12 months: _____Yes=1 No=2

2. In the last 12 months, has this household received any free grain from relatives or neighbours, etc.? Yes=1 No=2

3. In the last 12 months, has this household received food on credit? Yes=1 No=2

4. How much has this household spent on the following items in the last 30 days? [see notes]

		Last 30 days			Last 30 days
1	Rice		13	Fruit and nuts (fresh)	
2	Wheat		14	Fruit and nuts (dried) [see note 2]	
3	Gram, , maize, millet, barley		15	Sugar, honey	
4	Pulses		16	Salt	
5	Milk		17	Spices, pickles	
6	Ghee, butter, curd, ice-cream		18	Tea, coffee	
7	Edible oil [see note 1]		19	Tobacco, cigarettes,	
8	Eggs		20	Alcohol, other intoxicants	
9	Fish, prawns		21	Cold beverages, juice	
10	Meat		22	Biscuits, sweets	
11	Vegetables		23	Other foodstuff [specify]	
12	Readymade food, meals at a restaurant, etc.		24	Total food expenditure	

[Interviewer to read the following explanatory notes to interviewees]

Note 1: Edible oil includes: margarine, mustard oil, groundnut oil, coconut oil, and other edible oil.

Note 2: Dried fruit and nuts include coconut, groundnut, dates, cashew nuts, walnuts, other nuts, raisins etc.).

K. Expenditure: Non-food items

1. How much did this household spend on the following items in the last 12 months? [see notes]

		Last 12 months			Last 12 months
1	Clothing		11	Medical care, medicine, family planning	
2	Footwear		12	Books, magazines, newspapers, periodicals, library charges	
3	Bedding [see note 1]		13	Donations to priest, festival expenses (except for clothing)	
4	Entertainment [see note 2]		14	Postage and telegrams	
5	Personal items [see note 3]		15	Weddings, funerals, child birth, family activities	
6	Toiletries [see note 4]		16	Jewellery, gold, silver, ornaments	
7	Sundry articles [see note 5]		17	Remittance sent to other households	
8	Consumer services [see note 6]		18	Repayment of debts	
9	Transport other than to work		19	Other (taxes, bribes, tips, charity donations, legal expenses, etc.)	
10	Transport to work		20	Total [data entry person please calculate]	

[Interviewer to read the following explanatory notes to interviewees]

Note 1: Bedding includes bed sheets, bed covers, blankets, pillows, quilts, mattresses, chair/sofa, mosquito nets, and mats.

Note 2: Entertainment includes cinema, theatre, festival (*mela)*, fairs, picnics, sports equipment, toys, club fees, equipment for recreation and hobbies, photography, video cassettes, VCR, hire, pets, travel, lodging, and other entertainment.

Note 3: Personal items include spectacles, torches, pens, padlocks, umbrellas, raincoats, and cigarette lighters.

Note 4: Toiletries include soap, toothbrushes, toothpaste, powder, cream, hair oil, lotion, shampoo, hair cream combs, razor blades, shaving sticks, razors, shaving cream, and sanitary napkins.

Note 5: Sundry articles include electric light bulbs, tube lights, batteries, other durable goods, earthenware, glassware, buckets, water bottles, feeding bottles, and other plastic goods, *coir*, rope, laundry materials, incense stick flowers, insecticide, and other petty items.

Note 6: Consumer services include domestic servants, cooks, sweepers, watchmen, barbers, beauticians, laundry persons, ironing persons, tailors, and knife sharpeners.

K. Expenditure: Ownership and purchase of other durable goods

1. Does this household own any of the following items?				2. Has this household purchased any listed item in the last 12 months? Yes=1 No=2	3. Payment for purchase in the last 12 months	4. Has this household had any listed item repaired in the last 12 months? Yes=1 No=2	5.Payment for repair in the last 12 months
	Item	Yes=1, No=0	Number				
1	TV [indicate if black and white]				Rs.		Rs.
2	Radio				Rs.		Rs.
3	VCR or DVD player				Rs.		Rs.
4	Audio cassette recorder				Rs.		Rs.
5	Camera				Rs.		Rs.
6	Bicycle				Rs.		Rs.
7	Motorcycle, scooter or rickshaw				Rs.		Rs.
8	Car				Rs.		Rs.
9	Refrigerator or freezer				Rs.		Rs.
10	Washing machine				Rs.		Rs.
11	Electric fan or cooler				Rs.		Rs.
12	Heater or air conditioner				Rs.		Rs.
13	Telephone				Rs.		Rs.
14	Mobile phone				Rs.		Rs.
15	Sewing machine				Rs.		Rs.
16	Watch or clock				Rs.		Rs.
17	Pressure cooker				Rs.		Rs.

18	Pressure lamp				Rs.		Rs.
19	Cot or bed				Rs.		Rs.
20	Gold or silver jewellery				Rs.		Rs.
21	Copper or brass utensils				Rs.		Rs.
22	Livestock [other than pets]				Rs.		Rs.

L. Field investigator's observations

1. In my opinion, this household in this community is relatively

1. Very rich 2. Rich 3. Average 4. Poor 5. Very poor

2. Field Investigator's comments and observations about respondents

3. Field investigator's comments and observations about the circumstances of the interview

Appendix 4 List of Occupations by Category

A. List of Male Household Heads' Occupations by Category

1. **Unskilled manual labour**: coolie, construction labourer, guard (*chokidar*), sweeper, cobbler, ear cleaner, daily wage labourer, factory assistant, scrap collector, house servant, cook, and laundry person (*dhobi*).
2. **Skilled manual labour**: barber, carpenter, mason, magician, weaver, blacksmith, kite maker, embroidery worker, puppet show worker, drummer, furniture maker, electrician, painter, street entertainer, and other manufacturing workers.
3. **Transport**: rickshaw puller, cart puller, and auto-rickshaw driver.
4. **Trade and sales**: shopkeeper, vegetable vendor, cloth seller, oil seller, butcher, fruit vendor, milkman, *jalebi* shop assistant, ration shop assistant, snack seller, fishmonger, and grocer's assistant.
5. **Professional and semi-professional**: restaurant owner, teacher in government school, contractor in factory, personal tutor, property dealer, flour mill owner, clerk, village *pradhan*, civil servant, business person, priest and police officer.
6. **Agriculture**: farmer (landholder)
7. **Agriculture Labour:** agricultural labour, animal husbandry worker
8. **Public sector manual work**: labourer, sweeper, cook, fourth class employee in public works department, New Delhi Municipal Council manual worker, railway department worker, postal employee, forestry department worker, public mill worker, Municipal Corporation of Delhi worker, armed forces service person, and municipal corporation worker.

B. List of Slum Dwellers' Occupations

1. **Professional and semi-professional:** social worker with NGO, unqualified doctor, cable contractor, Quran teacher, heavy loading contractor, supervisor in tool making factory, supervisor in general factory, computer operator, priest, field worker, poet, Delhi Development Authority worker (administration), personal tutor, van owner, supervisor in adhesive factory, and field executive with mobile phone company.
2. **Daily wage labour**: miscellaneous work, agricultural labourer, beggar.
3. **Technical and maintenance**: line man at Delhi Jal Board (Delhi Water Board), line man at electricity board, watch repairer, electrician, welder, plumber, electrical item repairer, blacksmith, boiler repairer, lock repairer, duplicate key maker, helper in garage, vehicle mechanic, cycle repairer, factory drill operative, cobbler, battery servicer.
4. **Entertainment**: magician, D. J., drummer, puppet show performer, street show

performer.

5. **Sales and trade**:

   Shop sales, demonstration, and assistant in: dry cleaner, *pakoda* shop, small grocer, butcher, printing shop, telephone kiosk, leather purse shop, wire storeroom, small *bidi* shop, milkman, PCO and ration shop, wholesale market, hardware shop, scrap metal shop, gas fitting shop, vegetable market, photographer's studio, mobile showroom, garment showroom, electrical goods shop, petrol station, marble shop, furniture shop, FCI godown, scrap shop, *chole* shop, greengrocer, tailor, furniture showroom, timber shop, milk and curd shop, clothes shop, shoe shop, supermarket, tobacconist.

   Street vending and related work: plant seller, vegetable vendor, buying and selling second-hand clothes, fruit vendor, balloon seller, bed linen seller, fried pork meat seller, handkerchief seller, magazine seller, *chole* seller, water bottle seller, roadside tea seller, *chowmin* seller, biscuit seller, banana seller, artificial jewellery seller, *chaat* seller, utensil seller, roadside *bidi* vendor, egg seller, juice vendor, *mattah* seller (door to door), cloth vendor, bagged milk seller, snack seller, *paan* and/or *bidi* seller, potato seller from cart, tobacco seller from cart, *puri* seller from cart, chicken meat seller, roadside water vendor, peanut vendor, polythene bag seller, plastic goods seller, CD seller, *golgappa* seller, spice seller, sweet seller, *chaat* and *chola* seller.

6. **Services (other than entertainer):**

   Personal care and related work: barber, ward boy in hospital, helper in *anganwadi*, beautician, doctor's assistant, traditional midwife.

   Travel attendant: private bus conductor.

   Housekeeping and restaurant service: tea stall worker, helper in canteen, cook in restaurant, private house cook, waiter in hotel, helper in *dhaba*, housekeeper in hotel.

   Shoe cleaning and other street services: shoe polisher.

   Domestic and related services: clothes ironing person, maid servant, office cleaner, factory cleaner, private house servant, servant in school, laundry person, cleaner in restaurant.

   Caretaker and related work: gardener.

   Messenger, porter, doorkeeper and related work: private house watchman (*chowkidar*), courier, school handyperson, factory watchman, office watchman, private sector office handyperson (*peon*), gym handyperson, office helper, government office handyperson, rent collector.

   Refuse collection and related work: bungalow sweeper, house sweeper, hostel sweeper, school sweeper, hospital sweeper, government office sweeper, shop sweeper, scrap metal/plastic collector, scrap dealer, refuse collector, refuse seller, sewage pipeline cleaner.

7. **Mining and building labour:** carpenter, mason, construction labourer, plaster of Paris worker, painter, tent house labourer, railway gangman, drilling worker.
8. **Manufacturing labour:** dying, polishing bangles, packing in garment factory, tailor, cutting thread in export cloth factory, helper in wire factory, helper in shoe factory, making paper envelopes, *chick* maker, labourer in ice factory, worker in dye-making factory, worker in tool-making factory, worker in clothes dyeing factory, worker in iron factory, worker in nail polish factory, cooler and trunk making, paring wire, embroidery, furniture making, cardboard cutting, making *bindi*, worker in nail factory, making iron utensils and tools, labourer in fibre plate factory, helper in plastic bag manufacturing factory, helper in steel plating factory, helper in card factory, helper in clip making factory, machine fitter in water tank factory, helper in sock factory, polishing in steel factory, worker in herbal medicine factory, labourer in medicine factory, labourer in socks manufacturing company, stitching ladies suits and blouses, labourer in iron-cutting factory, helper in printing factory, labourer in plastic goods factory, packing socks, making *chaat* sticks, cutting out clothes, tailor in export factory, hand embroidery helper, clothes designer, folding clothes in factory, helper in garment factory, worker in plastic bottle factory, pattern master in export factory, sewing clothes at home, making wooden boxes, coil binder, making iron tools, pasting work in factory, sewing jute bags, ragdoll maker, puppet maker, helper in flour mill, labourer in paint box-making factory, men’s tailor, helper in tyre factory, labourer in bottle factory, helper in water bottle factory, making newspaper envelopes, making signboards.
9. **Transport and Freight handling:** three-wheeler driver, rickshaw puller, cart puller, auto-rickshaw driver, tractor driver, taxi driver, mini-truck driver, *tempo* driver, bus driver, private house chauffer, school van driver, loading and unloading goods, transporting goods.